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**The use of an Acceptance and Mindfulness-  
based Stress Management Workshop  
Intervention with support staff caring for  
individuals with intellectual disabilities**

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**Doctorate in Clinical Psychology**

**The University of Edinburgh**

**May 2012**

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# 1. Abstract

**Introduction:** Support staff working with individuals with intellectual disability (ID) and challenging behaviour experience high levels of work-related stress. Preliminary theoretical and experimental research has highlighted the potential suitability of acceptance and mindfulness approaches for addressing support staff stress. This study examines the effectiveness of an acceptance and mindfulness-based stress management workshop on the levels of psychological distress and well-being of support staff working with individuals with ID and challenging behaviour.

**Method:** Support staff (n=120) were randomly assigned to a workshop intervention condition (n=66) or to a waiting list control condition (n=54). Measurements were completed at three time points (pre-, post and six week follow-up) for: psychological distress, well-being, perceived work stressors, thought suppression, emotional avoidance/psychological inflexibility.

**Results:** The results showed that for psychological distress there was a significant interaction effect in favour of the workshop. Thought suppression was found to reduce significantly in the intervention group post to follow-up, although no significant change was found in well-being or experiential avoidance/psychological inflexibility. For individuals with higher levels of psychological distress at pre-intervention (GHQ>11), larger effect sizes for the interaction were found, suggesting a greater impact of the workshops on the most distressed.

**Conclusion:** Overall, results demonstrated support for the effectiveness of an acceptance and mindfulness-based intervention in reducing distress.



## **2. Systematic Review: A review of Mindfulness-Based Interventions for carers of individuals with a Developmental Disability**

(Prepared for submission to: Research in Developmental Disabilities)

**Title: A review of Mindfulness-Based Interventions for carers of individuals with a Developmental Disability**

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## **Abstract**

There has been an ever-growing application of mindfulness-based interventions (MBI) to improve individuals' psychological well-being across a range of physical and mental health conditions. This systematic review summarises and evaluates the methodological quality of current published research on the use of MBI with carers of individuals with a developmental disability (DD). The review yielded nine articles which applied MBI with parents and support staff. A wide range of innovative interventions and outcome measures were used in the studies. MBI was associated with improvements in carers' psychological health, stress, and satisfaction with caring. It was also associated with benefits for the individuals with DD, including reduced use of physical restraints and stat medications; reduced aggression, non-compliance, self-injury, and injury to others, and increased happiness, ability to learn, and social and community integration. The current evidence base, however, has several limitations, and therefore definitive conclusions regarding efficacy cannot be reached. Future systematic and methodical research is needed before MBI with carers of individuals with DD can be considered an evidence-based intervention.

**Keywords:** Intellectual Disability; Learning Disability; Mindfulness; ACT; Carer; Review.

## *1.1 Introduction*

In recent years, Mindfulness-Based Interventions (MBI) have enjoyed increasing popularity in both the media and research literature (Burke, 2010). There has been a flourishing application of MBI for a wide range of mental health issues, and in the promotion of general psychological well-being (McCracken & McCracken, 2011). These interventions are now widely accepted by healthcare professionals, having been shown to be effective in treating a variety of conditions and disorders (Escuriex & Labbé, 2011). However research into their applicability and effectiveness in the field of developmental disabilities is still in its infancy. This article aims to explore the current literature on the use of MBI for carers of those with a developmental disability (DD).

Mindfulness is a complex concept that is difficult to define precisely (Siegel, 2010). One frequently quoted definition is: "mindfulness is the awareness that emerges through paying attention on purpose, in the present moment, and non-judgementally to the unfolding experience moment by moment" (Kabat-Zinn, 2003, P.145)

Bishop et al. (2004) provided a working definition, proposing a two component model of mindfulness- involving, firstly, "the self-regulation of attention so that it is maintained on immediate experience, thereby allowing for increased recognition of mental events in the present moment"; and secondly, "adopting a particular orientation toward one's experiences in the present moment, an orientation that is characterized by curiosity, openness and acceptance" (p.232). Mindfulness may allow individuals to change their relationships to their experience, in a process described as re-perceiving. This ability to stand back from difficult, distressing thoughts and feelings, and respond more reflectively, rather than reactively, can be useful in health contexts (Bishop et al., 2004). Hence its application to the field of developmental disabilities appears highly relevant.

This review will explore the use of all mindfulness-based approaches-that is all approaches that have mindfulness as a major component of the intervention. The four most prominent mindfulness-based approaches (Baer, 2010) include Mindfulness-Based Cognitive Therapy (MBCT; Segal, Williams, & Teasdale, 2002), Mindfulness Based Stress Reduction (MBSR; Kabat-Zinn, 1990), Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999), and Dialectical Behaviour Therapy (DBT; Linehan, Heard, & Armstrong, 1993). These approaches have been described by some as part of a “third wave” of Cognitive Behavioural Therapies (CBT), whose core component is a focus on developing mindfulness (Hayes, 2004). However, methods of teaching mindfulness skills vary. These include formal meditation exercises, and less formal exercises such as emphasising mindfulness in daily life. Even though all these approaches involve mindfulness skills, important distinctions exist between them: MBSR and MBCT place considerable emphasis on engaging participants in practicing formal meditation practices. In contrast, ACT and DBT primarily emphasise shorter and less formal activities and exercises, in which component skills of mindfulness are practised.

ACT is theoretically based on similar principles to behaviour analysis (Hayes et al., 1999). As with behaviour analysis, ACT is founded on the pragmatic viewpoint of functional contextualism (Hayes, 2004). That is, behaviour is measured by how well something works in the accomplishment of a particular goal. In particular, this is evident in ACT's focus on the function of behaviour, in its ontological approach to the function of human language, and in its contextual approach (Baer, 2003). ACT has foundations in relational frame theory which is the behavioural theory of cognition and language (Hayes, 2004). Human language is seen as the primary root of psychological distress, particularly due to its creation of avoidance of

negative thoughts, feelings and sensations; and one relationship to our cognitions (Hayes et al., 1999).

All mindfulness-based interventions promote an attitude of acceptance and being with difficult emotions, rather than trying to extinguish them (Baer, 2003). This is unlike conventional CBT, where the main emphasis is typically on changing situations relating to the difficult emotions, or processing of such thoughts feelings and sensations through thought challenging/cognitive restructuring (David & Szentagotai, 2006). For instance, in Ellis's form of CBT the aim is to challenge evaluative beliefs, including global evaluations of the self, (e.g. "I am useless"), or of situations or events (e.g. "losing your job is awful"), or of ones emotions (e.g. "feeling anxiety is unbearable") (Ellis, 2001).

Those who provide care for individuals with DD commonly face experiences with high levels of distress (Robertson et al., 2005), where often it is not possible to change, challenge, or problem solve the difficult thoughts and emotions associated with their situation. Despite this, there has been a paucity of research exploring the use of psychological interventions to address these. Recent research has highlighted theoretical reasons as to why mindfulness-based approaches are well suited and potentially important to carers. These include: increasing psychological acceptance; targeting emotional avoidance; increasing psychological resilience; and improving present moment awareness of interactions with individuals with DD (Noone & Hastings, 2010).

It is postulated that mindfulness-based interventions has potential to improve outcomes in carers of individuals with DD in several ways (Noone & Hastings, 2009). They have potential to positively alter carer's relationship with distressing thoughts, feelings and sensations. This may have a positive impact on their psychological health, thus reducing emotional "burnout" and turnover in support staff (Noone & Hastings, 2010). Enhancing

present moment awareness in carers may potentially decrease the incidents of challenging behaviour by increasing their awareness of potential antecedents and environmental cues (Singh, Lancioni, Winton, Curtis, et al., 2006). Further, greater present moment awareness may aid communication by improving carer awareness of subtle changes in behaviour, body language or facial expression potentially leading to a greater understanding of the individuals with DD's emotions (Singh et al., 2007).

### *1.2 Aims of current review*

The aims of the review were twofold: to evaluate the evidence of the effectiveness of mindfulness-based interventions with those who provide care for individuals with developmental disabilities, and to identify the characteristics (participants, interventions, outcomes) of the published articles using mindfulness-based interventions.

For the purposes of this review carers are defined as individuals involved in the direct provision of care for individuals with developmental disabilities. This includes unpaid carers such as parents and family members, and paid carers such as support staff.

## **2. Method**

### *2.1 Search procedures*

Systematic searches were conducted in the following electronic databases: Medline, PsychInfo, Embase, Education Resources Information Center (ERIC), EBSCO (CINAHL plus), and Web of knowledge. Publication year was not restricted, but the search was limited to English-language. The search covered all the dates provided by these databases up until the 7<sup>th</sup> of October 2011. The search included a multi-database text word search, individual database text word search, and subject heading searches (see Appendix 1 for details). The titles were reviewed, and those that described appropriate studies were selected. The abstracts

were then reviewed, followed by review of the paper according to the inclusion and exclusion criteria outlined in 2.2.

The reference lists of the selected articles and the Journal of Research in Developmental Disabilities and Journal of Behaviour Modification were then hand searched to detect any further papers. These journals were chosen because several articles generated by the database search came from them. Researchers working within the field were contacted, and any articles that they were aware of were requested.

## *2.2 Inclusion and exclusion criteria*

### *2.2.1 Inclusion criteria*

- As the current literature in this area is very limited all published single case studies, small studies, studies with informal post-treatment results, controlled and non-controlled studies were included.
- Studies were included if they explicitly reported on the effectiveness or use of any mindfulness or mindfulness based treatment approach or program for individual(s) who provided care for individual(s) with DD (e.g. Intellectual Disability (ID), Autism Spectrum Disorder (ASD), Prader-Willi syndrome, and other syndromes/disorders).

### *2.2.2 Exclusion criteria*

- Studies with informal meditation, transcendental meditation or yoga used without structure/and or evidence of treatment protocol.
- Unpublished dissertations and theses.



- Studies where only brief abstracts were provided, and detail of methodology and results could not be obtained.

### *2.3 Data extraction*

Each identified study was first assessed to determine if it met the inclusion criteria. After this, each included study was summarised in terms of the following features: sampling/research design; intervention; outcome measures; main findings and statistical analysis used; and methodological limitations.

### *2.4 Assessment of methodological quality*

The methodological quality of each of the studies selected for review was assessed using a purpose-designed quality assessment tool devised from existing guidelines, including the revised version of the Scottish intercollegiate network guidance (Network, Harbour, & Forsyth, 2008), the Consolidated standards of reporting trials (CONSORT) guidelines (Schulz, Altman, & Moher, 2010) and the Single-Case Experimental Design Scale (SCED: Tate et al., 2008) (See appendix 2). Seven different aspects of each study were rated (objectives and study type, sampling, allocation, assessment of outcomes, intervention, data analysis and external validity) and allocated a possible score of 2 (=Adequate), 1 (=Partial) or 0 (=Inadequate) using seventeen items, giving a total possible score of thirty four. Items were rated as non-applicable if the item was not appropriate to the study design/article. The scores were adjusted to take into account non-applicable items, and a final score for each study was then calculated as a percentage. This was then converted into a descriptive quality rating after all articles were reviewed (i.e. Good  $\geq 70\%$ , Fair  $\geq 50\%$ : see Table 2).

### **3. RESULTS**

#### *3.1 Search strategy*

The electronic searches produced 257 hundred articles. After the removal of duplicates there were 124 articles. Following an initial review of titles and abstracts, 97 articles were excluded and 27 studies were reviewed in detail. Two further articles were included following contact with researchers and hand searches. In total 9 articles met the search criteria and were reviewed. There were no published articles using DBT or MBCT. There were two excluded studies implementing MBSR. Only a brief abstract was available for the first study, and this did not provide enough details to fulfil the inclusion and exclusion criteria, or allow for a review of the results and methodology (Bazzano et al., 2010). Unsuccessful efforts were made to contact the author. The second was an unpublished dissertation (Epstein, 2011). A further study was excluded because it was unclear if the multi-disciplinary team participants could be properly classified as carers (Singh et al., 2002). Three unpublished dissertations were excluded (Bethay, 2010; Epstein, 2011; Schwetschenau, 2009). Given the heterogeneity of the included studies, the results of the studies are described qualitatively, rather than statistically combined.

#### *3.2 Findings*

Table 1 summarises the findings in terms of: (a) sampling, (b) intervention, (c) main findings and outcome measures, (d) statistical analysis and data, and (e) limitations of the nine included studies.

**Table 1:** Summary of Findings

Citation	Sampling: Participants; setting; recruitment; research design	Intervention	Dependent variables/ Outcome measured/Main Findings.	Statistical analysis used/Data reported, effect size (where possible)	Limitations
(Noone & Hastings, 2009)	<b>Participants:</b> Support staff, n=28 (of which n=6 small waiting list control); <b>Type of client cared for:</b> Moderate to severe ID with challenging behaviour. <b>Setting:</b> Community homes. Workshop training. <b>Recruitment:</b> Within locality, convenience and availability. <b>Design:</b> Single group, pre-post design	ACT: One day workshop + half day follow up (Based on (Bond & Bunce, 2000)).	<b>Outcome/Dependent variable:</b> Subjective measures: Psychological stress- <i>General Health Questionnaire-12</i> (Goldberg, 1978), Work stress- <i>Staff Stressor Questionnaire</i> (Hatton et al., 1999). <b>Main Finding:</b> Support staff distress reduced significantly pre- to post intervention; whereas work related stressors increased slightly (not statistically significantly).	<b>Analysis:</b> Non-parametric, Wilcoxin test.; <b>Data:</b> Pre to post intervention: <i>GHQ</i> ( $t(14)=2.32$ , $p=0.037$ ). <b>Effect size:</b> Cohen's $d=0.51$ medium	50% did not attend 2nd workshop & post measures. Limited control in design/Lack of control in ANOVA. Small sample size. No follow up data.
(Noone & Hastings, 2010)	<b>Participants:</b> Support staff, n=34 (n=20 added to n=14 from previous study); <b>Type of client cared for:</b> Moderate to severe ID with challenging behaviour. <b>Setting:</b> Community homes. Workshop training. <b>Recruitment:</b> Within locality, convenience and availability. <b>Design:</b> Single group, pre-post design	ACT: One day workshop + half day follow up (Based on Bond & Bunce, 2000; same protocol as Noone and Hastings, 2009).	<b>Outcome/Dependent variable:</b> Subjective measures: Psychological stress- <i>General Health Questionnaire-12</i> (Goldberg, 1978), Work stress- <i>Staff Stressor Questionnaire</i> (Hatton et al., 1999). <b>Main Finding:</b> Support staff reported less psychological distress post intervention despite the perceived level of stress in the work environment not reducing.	<b>Analysis:</b> Related samples t-test. Mann-Whitney; <b>Data:</b> Pre to post intervention: <i>GHQ</i> ( $t(33)=2.45$ , $p=.48$ ). <b>Effect size:</b> Cohen's $d=0.48$ medium	Design was uncontrolled/ Little attempt to control for confounding variables. Used top up data from Noone and Hastings (2009). Small sample size. No follow up data.

Citation	Sampling: Participants; setting; recruitment; research design	Intervention	Dependent variables/ Outcome measured/Main Findings.	Statistical analysis used/Data reported, effect size (where possible)	Limitations
(Singh et al., 2009)	<b>Participants:</b> Support staff, n=23 <b>Type of client cared for:</b> mild to profound ID & various psychiatric diagnoses. <b>Setting:</b> Community homes. Workshop training. <b>Recruitment:</b> Convenience sample <b>Design:</b> multiple baseline design	Mindfulness: 12 weekly x 2 hour sessions (Singh et al., 2006)	<b>Outcome/Dependent variable:</b> Objective measures: Incidents, observations (i.e. verbal exchanges that could lead to physical aggression, but not responded to), verbal redirections, physical restraints, stat medications, staff injuries, peer injuries. <b>Main Finding:</b> Mindfulness training beneficial to individuals with DD and staff. As reductions: in physical restraints; stat medication; verbal redirections; and staff & peer injuries. Increase in use of observations.	<b>Analysis:</b> Descriptive only (i.e. Means, percentages); <b>Data:</b> Mean number of target variables per week: Restraints (am/pm shifts)=2.67/2.60 at baseline, 2.00/1.50 at training, practice=0.20/0.35; Stat medications=1.00/1.80 at baseline, 0.75/0.75 at training, practice=0.04/0.13.	Floating staff and new admissions affected results. Only 2 baselines taken in multiple baseline study. Slow arrival of effects of training.
(Singh et al., 2004)	<b>Participants:</b> Support staff, n=6 <b>Type of client cared for:</b> Profound ID & complex medical & physical problems. <b>Setting:</b> Group home <b>Recruitment:</b> Selected from pool of support staff. <b>Design:</b> multiple baseline across participant design	Mindfulness training program: 8 x1 hour sessions delivered across eight weeks (Singh et al., 2004)	<b>Outcome/Dependent variable:</b> Objective measure: Observed happiness. <b>Main Finding:</b> Increasing mindfulness of support staff can produce a substantial increase in the levels of happiness displayed by the individuals with profound multiple disabilities to which they provide care.	<b>Analysis:</b> Descriptive only (i.e. Means, percentages); <b>Data:</b> Individuals showed an increase in observed happiness of between 146% and 437%.	Small numbers in groups. No explanation of changes in support staff approach.

Citation	Sampling: Participants; setting; recruitment; research design	Intervention	Dependent variables/ Outcome measured/Main Findings.	Statistical analysis used/Data reported, effect size (where possible)	Limitations
(Singh et al., 2010)	<b>Participants:</b> Support staff, n=3; <b>Type of client cared for:</b> Profound ID & Complex medical and physical problems. <b>Setting:</b> Group home <b>Recruitment:</b> Same participants as Singh et al., (2004). <b>Design:</b> multiple baseline across participant design.	Mindfulness training program: 8 x1 hour sessions delivered across eight weeks (Singh et al., 2004)	<b>Outcome/Dependent variables:</b> Objective measure: non-compliant response (from children at home). Subjective measure: Informal interview. <b>Main Finding:</b> Children of support staff trained in mindfulness showed a decrease in non-compliance to instructions or requests made of them. Preliminary evidence of the transformational effects of mindfulness.	<b>Analysis:</b> Descriptive only (i.e. Means, percentages); <b>Data:</b> Children showed a reduction in non-compliance between 45 and 78%.	Small sample size. Lack of measure of mindfulness. No observation of carer behaviour with individuals with DD or own children pre, during or post training.
(Singh, Lancioni, Winton, Curtis, et al., 2006)	<b>Participants:</b> Support staff, n=15; <b>Type of client cared for:</b> Severe to profound ID & challenging behaviour. <b>Setting:</b> Group home <b>Recruitment:</b> Convenience sample <b>Design:</b> multiple baseline design across group homes	Mindfulness training program: 5 day intensive mindfulness training (Singh et al., 2006a) (after 5 day behavioural training).	<b>Outcome/Dependent variables:</b> Objective measures: staff interventions, learning objectives, socially integrated activities, physically integrated activities, restraints. Subjective measures: staff satisfaction, social validation of staff behaviour. <b>Main Finding:</b> Mindfulness training enhanced the effects of behavioural management training. Improved staff ability to manage aggression and teach new skills to individuals with DD.	<b>Analysis:</b> Descriptive only (i.e. Means, percentages); <b>Data:</b> Mean number of staff interventions was M=20.9 at baseline, M=18.4 after behaviour training, and M=13.1 after mindfulness training.	Small sample size. Lack of control for confounding variables. Possibility of sequence effects.

Citation	Sampling: Participants; setting; recruitment; research design	Intervention	Dependent variables/ Outcome measured/Main Findings.	Statistical analysis used/Data reported, effect size (where possible)	Limitations
(Blackledge & Hayes, 2006)	<b>Participants:</b> Parent of DD, n=20; <b>Type of client cared for:</b> ASD children; <b>Setting:</b> Attended workshop for intervention; <b>Recruitment:</b> Geographic locality; <b>Design:</b> Within group design, repeated measures (four time points).	ACT: two-day (14 hours) ACT-based workshop.	<b>Outcome/Dependent variable:</b> Subjective measures: Depression symptoms- <i>Beck depression inventory-II</i> (Beck, Steer, & Brown, 1996), Psychological well-being- <i>general health questionnaire</i> (Goldberg, 1978), and <i>global severity index (GSI) of the brief symptom inventory (BSI)</i> (Derogatis & Melisaratos, 1983). <b>Main Finding:</b> ACT helps parents to adjust to the difficulties in raising children with ASD. Pre-to post improvements on the <i>BDI-II</i> and <i>GSI</i> . And Pre to follow-up improvements on the <i>BDI-II</i> , <i>GSI</i> , and <i>GHQ</i> .	<b>Analysis:</b> non-parametric Wilcoxin signed-ranked tests; <b>Data:</b> Significant pre to follow up: <i>BDI-II</i> ( $z(20)=-2.52, p=.006$ , one-tailed), <i>GSI</i> ( $z(20)=-2.03, p=.021$ , one-tailed), <i>GHQ-12</i> ( $z(20)=-.167, p=.048$ , one-tailed).	No formal control group/attempt to control for confounding variables. Small trial. Half participants were couples. Participants not psychologically distressed at baseline. 11% drop out.
(Singh, Lancioni, Winton, Fisher, et al., 2006)	<b>Participants:</b> Parents of DD n=3; <b>Type of client cared for:</b> Children with DD-Autism Spectrum Disorder; <b>Setting:</b> Home; <b>Recruitment:</b> No formal recruitment, parents volunteered; <b>Design:</b> Multiple baseline across participants design	Mindfulness parent training program (Singh et al., 2006): 12 (2 hour) weekly sessions over a 12 week period.	<b>Outcome/Dependent variables:</b> Objective measures: aggression, noncompliance, self-injury. Subjective measures: <i>Subjective unit's of-parenting satisfaction, use of mindfulness, interaction satisfaction</i> (Stanley & Averill, 1998). <b>Main Finding:</b> Mindful parenting decreased children's aggression, non-compliance, and self-injury. Also, increased satisfaction with parenting skills & interactions with children.	<b>Analysis:</b> Descriptive only (i.e. Means, percentages); <b>Data:</b> Aggressive behaviour per week: Dyad 1, baseline to training=16% decrease, to practice=88% decrease; Dyad 2, baseline to training=6% decrease, to practice=70% decrease. Dyad 3, baseline to training= 10% decrease, to practice=85% decrease.	Small sample size of convenience. Lack of control of confounding variables. Training was individualised to each parent.

Citation	Sampling: Participants; setting; recruitment; research design	Intervention	Dependent variables/ Outcome measured/Main Findings.	Statistical analysis used/Data reported, effect size (where possible)	Limitations
(Singh et al., 2007)	<b>Participants:</b> Parents of DD, n=4; <b>Type of client cared for:</b> DD children-intellectual disability (ID) <b>Setting:</b> Training at day centre; <b>Recruitment:</b> Convenience sample; <b>Design:</b> multiple baseline across participant design	Mindfulness parent training program (Singh et al., 2006): 12 (2 hour) weekly sessions over a 12 week period.	<b>Outcome/Dependent variables:</b> Objective measures: aggression, social interactions. Subjective measures: <i>parenting stress index (PSI;</i> Abidin, 1990). <i>Subjective units of-parenting satisfaction, use of mindfulness, interaction satisfaction</i> (Stanley & Averill, 1998). <b>Main Finding:</b> Mindful parents decreased children's aggressive behaviour and increased social skills. Parents increased satisfaction with parenting skills, social interactions with children, and lowered stress levels.	<b>Analysis:</b> Descriptive only (i.e. Means, percentages); <b>Data:</b> Aggressive behaviour per week: Dyad 1, baseline to training=33% decrease, to practice=87% decrease; Dyad 2, baseline to training=26% decrease, to practice=94% decrease. Dyad 3, baseline to training= 30% decrease, to practice=91% decrease. Dyad 4, baseline to training=36% decrease, to practice=88% decrease.	Small sample size of convenience. Lack of control of confounding variables. Subjective units not validated. Effect of individualised sessions not assessed.

### *3.3 Experimental design*

None of the reviewed papers used a randomised controlled or controlled design. Seven studies employed a multiple baseline design. This varied between a multiple baseline across participant, or group home. Only one study included a control group (n=6) (Noone & Hastings, 2009). However due to its small size, only limited comparisons or conclusions were appropriate. None of the studies had power calculations, although one study commented on the small sample size affecting statistical power and the statistical analysis (Blackledge & Hayes, 2006).

### *3.4 Sampling*

The 9 reviewed studies highlighted two main areas where researchers have applied Mindfulness-Based Interventions (MBI) to carers who may be either a) support staff, or b) parents of children with DD.

#### *3.4.1 Support staff*

Six studies explored the use of MBI with direct support staff. None provided inclusion or exclusion criteria for participants. Recruitment was mainly based on samples of convenience and availability, with participants being recruited within their community group homes settings. Studies varied in sample size from n=3 to n=34. In total, the six studies comprised 103 support staff, with a higher ratio of females to males (68 female, 38 male). Ages ranged from 18 to 59, with mean ages varying from 47 years (Singh et al., 2009) to 30 (Singh, Lancioni, Winton, Curtis, et al., 2006). In all studies, participants were based in community homes, with levels of disability of those they supported ranging from mild to profound, and diagnoses including ASD, ID, psychosis, and mood disorders. The data



samples presented in two of the studies involved participants previously included in studies (Noone & Hastings, 2010; Singh et al., 2010).

### *3.4.2 Parents*

Three of the reviewed studies explored the use of MBI with parents of children with ASD or ASD and ID, predominantly mothers aged 23 to 66 years, (Blackledge & Hayes, 2006; Singh, Lancioni, Winton, Fisher, et al., 2006; Singh et al., 2007). The study participants comprised samples of convenience.

### *3.5 Interventions*

The identified articles suggest there are two broad areas of MBI that have been implemented with carers to date.

#### *3.5.1 Mindfulness-based training programs*

The first is the Mindfulness-based Training Programs developed by Nirbhay Singh and colleagues based on psychological theory derived from Buddhist teachings, and Eastern wisdom (Kabat-Zinn, 2003; Singh et al., in press). These encompass various mindfulness meditation exercises and practices, didactic teaching, instruction, and homework exercises and assignments including reading. The importance of the techniques being taught by an experienced meditation practitioner, who regularly meditates and adheres to the spirit and substance of Eastern wisdom traditions is emphasised.

Two studies evaluated the effects of the same Mindfulness-based Training, delivered over eight hour-long sessions during a two-month period to support staff, both in terms of the individuals with DD they supported (Singh et al., 2004), and their parenting abilities away from work (Singh et al., 2010). This training programme consisted of a pre-training phase

where support staff met individually with the principal researcher. The training program and mindfulness philosophies were explained, and they were assigned reading (Hanh & Hanh, 1992; Kabat-Zinn, 1994). The three support staff then attended seven small group sessions over an eight-week period to complete the program. They were encouraged to continue the practice of mindfulness after completion of the programme.

Secondly, Singh et al. (2006) delivered a five-day intensive Mindfulness training with 18 group home support staff using a workshop format. All the staff had attended a 5-day Behavioural Management training the week before as part of their induction. A detailed treatment protocol was again included (Singh, Lancioni, Winton, Curtis, et al., 2006).

Thirdly, a 12-session Mindfulness program was implemented, which covered in detail the philosophy and practice of Mindfulness. This program has been used with parents in two studies (Singh, Lancioni, Winton, Fisher, et al., 2006; Singh et al., 2007) and support staff in one study (Singh et al., 2009). It was presented in two-hour individual sessions to the parents of children with DD; whereas the sessions were provided in a group format to the support staff. The 12-session protocol was exactly the same for both parents and support staff, the only difference being that parents were provided with reading assignments prior to their commencement of the programs (Kabat-Zinn & Kabat-Zinn, 1998). After the programs, participants were encouraged to continue mindfulness exercises, and to apply their skills to interactions with the individuals with DD they supported.

### *3.5.2 Acceptance and Commitment therapy (ACT)*

The other broad area of MBI implemented with carers covers interventions that have been derived from the core principles of ACT (Hayes et al., 1999). Two of the studies

described the delivery of an ACT workshop to support staff (Noone & Hastings, 2009; Noone & Hastings, 2010). One study involved the implementation of workshop training to parents (Blackledge & Hayes, 2006). All the workshops involved mindfulness exercises, didactic teaching, group discussion, and experiential exercises developed originally in ACT protocols from individual therapy (Hayes et al., 1999). Workshop protocols all covered the core processes and components implemented in ACT interventions. There were several differences between the Blackledge and Hayes (2006) and Noone and Hastings (2009; 2010) studies: the order in which the components were delivered; the experiential exercises, metaphors and mindfulness exercises used; and the amount of time taken to deliver the material. All articles provided detailed descriptions of the treatment protocol implemented.

Blackledge and Hayes' (2006) study was the only one included in this review that reported on adherence to treatment protocol, measured by observer ratings of ACT processes based on 16 hours of randomly selected video recordings of the workshops. Inter-rater reliability was high (.93) and the results suggested that all segments analysed had either extensive or considerable emphasis on the ACT processes, apart from the first half hour of the sessions covering the orientation remarks and course introductions.

### *3.6 Outcome measures*

There was heterogeneity in outcome measures used in the reviewed studies.

#### *3.6.1 Subjective measures*

Several subjective outcome measures were used to assess psychological adjustment, well-being, and stress of carers. The *General Health Questionnaire* is a widely used self-rating measure of psychological distress, having good reliability and validity (GHQ:Goldberg, 1992). It was used in three studies with parents and support staff in

combination with other measures of depressive symptomology and psychological distress (Blackledge & Hayes, 2006), staff perceptions of work stressors (Noone & Hastings, 2009; 2010) or parental stress (Singh et al., 2007).

Three studies (Singh, Lancioni, Winton, Curtis, et al., 2006; Singh, Lancioni, Winton, Fisher, et al., 2006; Singh et al., 2007), utilised improvised subjective scale measures based on the principles of the *Subjective Units of Discomfort scale (SUDS*: Stanley & Averill, 1998). This is a technique used to quantify experience of discomfort, in which individuals are asked to rate satisfaction on a sliding numerical scale. Participants were asked to rate parenting satisfaction, use of mindfulness (in parenting/work), interaction satisfaction (i.e. degree of satisfaction of mother with interaction with child), and support staff satisfaction with their work. In addition, *SUDS* were used to measure the social validation of support staff behaviour (i.e. satisfaction with the way staff attended to individual's care, well-being and treatment), as rated by parents or friends of individuals with DD. The reliability and validity for the use of these scales were not known or reported in the studies.

Informal interviews were used in one study to collect qualitative data about the transformational effects of MBI (Singh et al., 2010). The interviews, completed post-training, asked about participants' experiences and perceived outcomes.

Only one study explicitly included process measures to collect data on the possible mediating variables of the ACT intervention (Blackledge & Hayes, 2006). The two measures used, the *Acceptance and Action Questionnaire (AAQ*: Hayes et al., 2004) and *The Automatic Thoughts Questionnaire-believability (ATQ-B*: Hollon & Kendall, 1980), had been shown to co-vary with outcomes, and aimed to capture the effects of key processes of the ACT intervention.

### *3.6.2 Objective measures*

Objective measures involved direct observation using specifically developed checklists, and the use of different forms of technology including Palm Personal Digital Assistants (PDA), as well as video observation. Inter-rater reliability for the objective measures implemented was collected in all of the included studies. This was calculated by examining the percentage agreement between ratings of the data collectors, over a proportion of the total observations. Percentage agreement was high in all included studies.

Aggression or incidents directly related to aggression were objectively measured and explicitly defined in four studies. Data were collected by mothers using PDAs during waking hours with the children, varying between 8 and 14 hours daily (Singh, Lancioni, Winton, Fisher, et al., 2006), and 8 to 10 hours (Singh et al., 2007). Fathers provided the inter-rater agreement data. Parents of individuals with ASD also used PDAs to record their children's rates of self-injurious behaviour (Singh, Lancioni, Winton, Fisher, et al., 2006). Support staff measured aggression using data on the use of physical restraints (Singh, Lancioni, Winton, Curtis, et al., 2006), and seven measures related to aggression such as staff and peer injury, 'stat' medication use and physical restraint (Singh et al., 2009).

Non-compliance, defined as refusal to carry out instructions or requests, was recorded by mothers using a PDA as an outcome measure in two studies (Singh, Lancioni, Winton, Fisher, et al., 2006; Singh et al., 2010). Fathers acted as reliability raters.

Additional outcome measures which have been used to evaluate the positive benefits of MBI include social interactions of children with DD with their siblings (Singh et al., 2007), learning objectives and participation in integrated activities by individuals with DD

(Singh, Lancioni, Winton, Curtis, et al., 2006), and ‘observed happiness’ in individuals with profound multiple disabilities (Singh et al., 2004). The latter was assessed by trained support staff ratings based on pre-defined individualised definitions of signs of happiness.

### *3.7 Main findings, quality assessment and limitations*

#### *3.7.1 Methodological quality assessment*

All 9 papers were reviewed by two raters using the Quality Assessment tool. Overall percentage agreement was high (98%). Individual disagreements were resolved with an independent reviewer. Only 1 study was rated as good, with the remaining 8 rated as fair.

**Table 2:** Quality Assessment Tool Ratings

<b>Citation</b>	<b>Objectives/ Study type</b>	<b>Sampling and Recruitment</b>	<b>Allocation</b>	<b>Assessment of Outcomes</b>	<b>Intervention</b>	<b>Analysis</b>	<b>External Validity</b>	<b>Methodological Quality Rating and Limitations</b>
(Noone & Hastings, 2009)	3/4	3/8	1/2	2/4	2/6	8/8	2/2	(21/34) 62%= Fair
(Noone & Hastings, 2010)	2/4	2/8	n/a	2/4	2/6	8/8	2/2	(18/32) 56%=Fair
(Singh et al., 2009)	3/4	3/6	n/a	2/4	2/6	4/6	2/2	(16/28) 57%=Fair
(Singh et al., 2004)	3/4	3/6	n/a	3/4	2/6	4/6	2/2	(17/28) 61%=Fair
(Singh et al., 2010)	2/4	0/6	n/a	3/4	4/6	3/4	2/2	(14/26)54%=Fair
(Singh, Lancioni, Winton, Curtis, et al., 2006)	3/4	3/6	n/a	3/4	2/6	4/6	2/2	(17/28)61%=Fair
(Blackledge & Hayes, 2006)	2/4	2/6	n/a	4/4	5/6	8/8	1/2	(22/30)73%=Good
(Singh, Lancioni, Winton, Fisher, et al., 2006)	3/4	2/6	n/a	3/4	4/6	3/6	1/2	(16/28)57%=Fair
(Singh et al., 2007)	3/4	2/6	n/a	3/4	4/6	3/6	1/2	(16/28)57%=Fair

### *3.8 The use of Mindfulness-based Training Programs with carers*

#### *3.8.1 Support staff*

The main findings of the two studies suggest that there are benefits associated with training support staff in Mindfulness. These include the reduction of aggressive and destructive behaviours in individuals with DD that they support, and changes in the way that staff responded to these (Singh, Lancioni, Winton, Curtis, et al., 2006; Singh et al., 2009).

Reductions were seen in incidents of physical and verbal aggression; observations of verbal exchanges that could lead to aggression but were not responded to; verbal redirection; physical restraints; stat medication; staff injuries and peer injuries (Singh et al., 2009). The Quality Assessment tool rated this study as fair (57%). There were several limitations to the study. Only two baseline measurements were taken as part of the multiple baseline design. This limits the comparisons that can be made, since such designs preferably require more baselines (Hawkins, Sanson-Fisher, Shakeshaft, D'Este, & Green, 2007). There were also several sources of potentially confounding variables, including the impact of new members of staff working in the teams; and new individuals with DD who were admitted to the group homes. As it took a 4 month period for the effects to be seen, it is uncertain whether any perceived changes can be fully attributed to the training.

Mindfulness training was also found to be associated with both an enhanced ability of support staff to effectively manage aggressive behaviour; and also to positively influence the learning of individuals with DD that they supported (Singh, Lancioni, Winton, Curtis, et al., 2006). Outcomes included a reduced number of staff interventions for aggression and use of emergency physical restraints, increases in learning objectives performed independently by the individuals, in socially integrated activities (e.g. social interactions), and physically



integrated activities (e.g. shopping). Other positive effects included significant increases in staff satisfaction with their work, and also satisfaction of others with their work/social validation. This study was rated as fair (61%), but there were several limitations. The sample size was small (n=15), and only limited attempts were made to control for other confounding variables that may have affected the aggressive behaviour of the individuals being supported. As support staff in this study received Behavioural Management training before Mindfulness training, sequence effects cannot be ruled out.

Mindfulness Training with support staff was also found to result in substantially increased levels of happiness displayed by individuals with profound multiple disabilities whilst taking part in leisure activity sessions (Singh et al., 2004). It was proposed that such training enabled staff to interact in a manner that increased the individuals' indices of happiness. This study was rated as fair (61%), however, there were several highlighted limitations. Sample size (n=6) was very small, the changes in support staff following training were not described, nor how they accounted for the increased happiness of their clients. After training, the staff were noted to be more responsive than reactive, non-judgementally accepting of the behaviours that the individual displayed, appeared to be more closely involved with individuals during the leisure activity sessions as well as more creative, flexible, and adaptive. However, no formal measurements of such changes were made.

Children of support staff trained in Mindfulness in one study (Singh et al., 2010) showed a decrease in non-compliance to instructions or requests made of them. These data were proposed as preliminary evidence of transfer of Mindfulness Training from caregiving as support staff, to parent-child interactions in the home environment. This study was rated as fair (54%). There were significant limitations including small sample size (n=3) and considerable variation in the non-compliance in the children at baseline. Little effort was

made in the experimental design to control for confounding variables, with no attempt to measure the mindfulness of the support staff. Participant interactions were not observed at any stage, either with individuals with DD or their own children; therefore, it is unclear which changes are attributable to Mindfulness training.

### *3.8.2 Parents*

Two studies explored the effects of Mindfulness Training Programs with parents. Both found an associated positive impact on aggressive behaviour.

Parent training was associated with decreases in the child's aggression, non-compliance, and levels of self-injury (Singh, Lancioni, Winton, Fisher, et al., 2006). It also increased parental satisfaction with parenting skills, and interactions with their child. The study was rated as fair (57%) with several limitations: The sample was small (n=3), and all mothers had requested the intervention, implying motivation to use the approach. The mothers were taught Mindfulness in one-to-one sessions by an experienced practitioner. This individualization of sessions may have impacted on the effectiveness of the intervention. The subjective units of satisfaction used in this study to quantify subjective experience were not validated. As the positive effects of the Mindfulness training took over 6 months to become apparent, it is possible that confounding variables not accounted for in the current study may have accounted for changes in outcomes.

In the second study, training parents in Mindfulness was associated with a decrease in the aggressive behaviour and an increase in the social skills of their children with DD (Singh et al., 2007). The parents also reported increased satisfaction with their parenting skills, had lower levels of stress, and more satisfying social interactions with their children. The study

was rated as fair (57%). There were again several limitations to the study. The convenience sample was small (n=4) and comprised mothers who had volunteered for the training, having seen the positive impact of Mindfulness in other services. The Mindfulness techniques were again individualised to each parent, the extent of which was not documented. There was little reported attempt to control confounding variables in the experimental design, which may have affected the outcomes.

### *3.9 The use of Acceptance and Commitment therapy interventions with carers*

#### *3.9.1 Support staff*

Noone and Hastings (2009; 2010) reported that the use of an ACT workshop had a positive impact on support staff; it reduced psychological distress, despite an unchanged perceived level of stress in the work environment with medium effect sizes in both studies ( $d = 0.51$ ; 2009 and  $d = 0.48$ ; 2010 respectively) [Cohen, 1992].

The 2009 study methodology was rated as fair (62%), and the 2010 study as fair (56%), however there were limitations with both studies. There were minimal attempts to control for confounding variables in the experimental designs. In the 2009 study there was a small control group (n=6); who completed measures at the same time points. Any statistical analysis was limited by the small sample size, and lack of a controlled comparison in an analysis of variance model (ANOVA) model. In both studies, the analysis was uncontrolled, with small sample sizes for a t-test. Hence all the results must be interpreted with caution. The 2010 study is further limited in that 14 of the participants were from the 2009 study, and no control group was included. In the 2009 study there was a high attrition rate after the first workshop (50%), which could be a potential source of bias affecting interpretation of results.

In both studies, there were no follow-up data presented, no review of adherence to intervention protocol, nor was information provided on the experience of the workshop therapist/trainer.

### 3.9.2 *Parents*

The results of the Blackledge and Hayes (2006) study suggest that an ACT workshop can be effective in helping parents to adjust psychologically to the difficulties in raising children with a diagnosis of Autism. These gains were maintained over a three-month follow-up period. There were significant pre-to post improvements on measures of depressive symptomology and psychological well-being, other than the *GHQ*. There were also significant pre- to follow-up improvements on all symptomatology and well-being measures. In addition, it was proposed that the changes in the process measures of believability of negative thoughts (*ATQ-B*), experiential avoidance, and cognitive fusion (*AAQ*), were suggestive of ACT processes mediating this positive change in outcomes. The study was rated as good (73%). However, limitations included a lack of control group, and of attempts to control for confounding variables, such as social support or other psychosocial processes that are often assimilated during group psychological interventions (Cohen, Underwood, & Gottlieb, 2000). The sample size was small, half were couples and not highly psychologically distressed at baseline. Such factors reduced both the power of the sample and conclusions that could be drawn from its results. Also, the external validity of these findings was only partially discussed.

## **4. Discussion**

### *4.1 General findings of the review*

The systematic search yielded nine articles implementing mindfulness-based interventions with carers of individuals with DD. The reviewed studies represent pioneering work, which provides a reasonable base of support for the feasibility and applicability of the use of MBI with carers. Findings suggest a wide range of positive impacts associated with MBIs for both carers and the individuals with DD they care for. The interventions appear to be beneficial in being associated with improved carer psychological health, stress, and satisfaction with caring. In addition, training carers in Mindfulness may enhance the effects of behavioural management training, and reduce the need for the use of physical restraints and stat medications. Results also suggest that more mindful carers may be associated with several positive effects on individuals with DD. These include: increasing their happiness and ability to learn; reducing levels of aggression, non-compliance, self-injury, and injuries to carers and peers; and increasing social and community integration.

The existing literature base might best be described as limited; however, the review may assist clinicians in their efforts to improve the range of interventions for carers with DD. When considering evidence for the efficacy of MBI, it should be noted that the reviewed studies implemented a range of MBIs, examined a range of innovative objective observations and subjective outcomes, and employed a range of experimental designs. Hence, making comparisons and reaching definitive conclusions becomes difficult.

### *4.2 Limitations of reviewed articles*

In general, the studies did not control for confounding variables and had small sample sizes of convenience, with no control condition or randomisation. This limited any

subsequent data analysis. The reviewed articles also had diverse and heterogeneous outcome measures. Indeed, several used innovative techniques and methodologies without established reliability and validity. Such methodological factors reduced attribution of causality, generalisability of results and ecological validity.

A major limitation of the current literature base stems from the experimental designs employed. No randomised controlled trials (RCT) or controlled trials were included. Six studies employed multiple baseline designs, which have both advantages and limitations.

Advantages include the reduced likelihood that effects were simply due to sources of internal invalidity, such as passage of time and contact with therapist (Hawkins et al., 2007); and the concurrent measurement of multiple behaviours allows for direct monitoring and generalisation of behaviour change. This facilitates increased exploration of potentially positive effects in a developing field. In addition, sequential implementation of the independent variables in this design parallels the practice of many clinicians. This may make multiple baseline designs easier to conceptualise and implement than RCTs or controlled trials. Potentially effective interventions for the carers were not withheld, as is often the case in controlled or RCTs. Also, multiple base line design afforded longer-term follow-up of the data to be presented, thus increasing potential for finding more sustained benefits of the MBI.

Some limitations of multiple baseline designs are: firstly, if behaviours are not functionally independent, the design may not demonstrate a functional relationship even though one may exist (Hawkins et al., 2007). This may be relevant for behaviours such as aggression. In several of the reviewed studies it is likely that functional relationships do exist with other outcomes. A second limitation exists because verification must be inferred from lack of behavioural changes, which is inherently weaker than a reversal design demonstrating experimental control (Hawkins et al., 2007). Thirdly, it has been proposed that multiple

baseline designs can be more an evaluation of the independent variables' (i.e. MBI) general effectiveness rather than an actual behaviour analysis. In a developing area such as MBI, however, this may not be a limitation.

Only one of the included studies in this review (Blackledge & Hayes, 2006) measured mediating variables. Measurement of these would have allowed for a greater understanding of the key, or active, components of the interventions, and their impact on outcomes. No studies included valid methods of measurement as to whether the changes in outcomes were due to the mindfulness practices and exercises in the MBI.

In general, minimal attention was paid to the experience or mindfulness practice of the trainer/therapist, and its impact on the carers and intervention outcomes. This is significant as therapist or trainer characteristics are reported to be critical in outcome research in mindfulness-based therapies (Segal, Teasdale, Williams, & Gemar, 2002).

All the included studies had detailed treatment protocols and descriptions of interventions used. However, a few studies noted that sessions had been individualised (Singh, Lancioni, Winton, Fisher, et al., 2006; Singh et al., 2007). Only one study reported on therapist adherence to the protocol (Blackledge & Hayes, 2006). Although closer adherence to manualised treatment protocols has been linked to poorer clinical outcomes (Addis, Wade, & Hatgis, 1999), it is seen as a key component of the development of evidence-based practice, and would help to further evidence for the efficacy of MBIs (Burke, 2010).

#### *4.3 Limitations of current review*

The findings from this review should be appraised in the context of several limitations. Owing to small numbers of studies in this review, publication bias could not be

calculated. Grouping together all the articles under the umbrella of MBI, while increasing the number of studies available for review, may not be appropriate because the interventions are different, and derive from different perspectives. However, a growing consensus of the mindfulness concept (Baer, 2010) is likely to benefit future research. Non-published studies, which may also have extended the number and range, were not reviewed. Nonetheless, the overall conclusions would have been unchanged, since the abstracts of the excluded studies also highlighted positive associations of using MBI with carers. Using the methodological quality assessment tool in this review may somewhat limit the generalisability of its findings. The tool was developed specifically for this review, since no suitable tools could be found. Inter-rater reliability was good, but it is not an established psychometric tool. In addition, the application of verbal descriptors to percentage scores could be considered somewhat arbitrary. Finally, as the tool focussed solely on information presented in articles, the quality rating descriptor given may be the result of an absence of information, rather than the presence of methodological weaknesses in the studies. Reflective of the state of the literature-base, and the emphasis on the quality assessment tool, no studies were rated as excellent.

#### *4.4 Areas for future research*

To improve the evidence base of mindfulness-based interventions in carers in developmental disabilities, the same recommendations apply as in other research areas: that is methodologically sound, large-scale RCTs, across a range of problems and populations (Baer, 2003). In order to further the current MBI research base, there must be careful attention to research aims and hypotheses; and to design, methodology, and selection of appropriate outcome measures. Analysis, including of potential moderating (Burke, 2010) and mediating variables must be thorough. Researchers should use standardised and manualised protocols to



allow replication, and help develop the evidence base. This could include measurement of therapist adherence to protocol, with studies reporting details of the experience and mindfulness practice of the therapist/trainer.

Another important aspect of research base development will be to clarify the conceptualisation and measurement of key components in these interventions, such as mindfulness. This would allow researchers to track changes in the degree of mindfulness as related to specific outcomes (Erisman & Roemer, 2011). However, there are controversies around the use of self-rated measurement tools and their validity in measuring mindfulness (Brown, Ryan, Loverich, Biegel, & West, 2011; Grossman, 2011). Mindfulness measurement could also include objective outcome measures and direct observation (Singh et al., 2010).

As yet there have been no published articles applying MBSR, DBT or MBCT intervention protocols with carers of those with DD, despite their application with other population groups (Drossel, Fisher, & Mercer, 2011; Epstein-Lubow et al., 2011; Foley, Baillie, Huxter, Price, & Sinclair, 2010). Future research could explore their efficacy with carers of those with DD. Research could also focus on what specific adaptations are needed for all the MBIs to maximise their efficacy with support staff, parents, and other health care professionals involved in the direct care of individuals with DD.

## **5. Conclusion**

The research evidence-base for mindfulness-based interventions is still in its infancy, but is growing at a rapid rate (Keng, Smoski, & Robins, 2011). This review has provided positive preliminary evidence of the applicability of MBI with carers in the field of DD. The studies reviewed highlight a wide variety of potential benefits for the use of MBI. However,

there is a need for future systematic and methodologically sound research before MBIs can be considered an established evidence-based intervention.

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### **3. Thesis Hypotheses & Aims**

#### *3.1 Findings of systematic review and this study*

The systematic review presented preliminary positive evidence of the applicability of Mindfulness-Based Interventions (MBI) with carers in the field of intellectual disability (ID). The research highlighted a wide range of positive effects associated with MBIs for both carers and individuals with ID. However, the review also found that there was a need for future systematic and methodologically sound research before MBIs could be considered to be an established evidence-based intervention.

In two of the reviewed studies, Noone and Hastings (2009; 2010) explored the use of an acceptance and mindfulness-based workshop intervention (Bond & Hayes, 2002) with support staff in ID services. Their findings suggested that the workshops targeting maladaptive emotion-focused coping strategies produced benefits for support staff levels of psychological distress. This change occurred despite an unchanged perceived level of stress in the work environment, which could be interpreted as an increase in psychological resilience. Additionally, there was preliminary evidence to suggest that acceptance and mindfulness based workshops may have the greatest impact on those with the highest levels of psychological distress pre-intervention (Bethay, 2010; Flaxmann & Bond, 2010). Noone and Hastings (2010) highlighted that the results needed to be considered in the context of limitations: there were minimal attempts to control for confounding variables in the experimental designs; small sample size, and lack of a control group.

### *3.2 Aims of the study*

The current study will aim to further explore the application of an acceptance and mindfulness-based intervention with support staff working in ID services, using a design that attempts to address the limitations of previous research in this area. The impact of the workshop intervention on the psychological distress and wellbeing of participants, as compared with waiting list control group participants will be investigated. In addition this study will aim to enhance understanding as to the possible process variables influencing the outcome of the intervention. This study aims to answer the following research questions:

#### **Primary research question:**

1) Does the acceptance and mindfulness-based workshop reduce psychological distress and improve well-being in support staff working with individuals with ID, in comparison with waitlist controls?

#### **Secondary Research Questions:-**

2) Does the acceptance and mindfulness-based workshop reduce support staff levels of thought suppression and experiential avoidance/psychological inflexibility in comparison with the wait list controls?

3) Does the intervention produce the greatest impact on support staff with pre-intervention scores that indicate clinically significant levels of psychological distress?

### 3.3 Thesis Hypotheses

**Hypothesis 1a-** *The acceptance and mindfulness-based workshop will significantly reduce psychological distress in support staff (post intervention and follow up) working with individuals with ID in comparison with the control group.*

**Hypothesis 1b-** *The acceptance and mindfulness-based workshop will significantly enhance well-being in support staff (post intervention and follow up) working with individuals with ID in comparison with the control group.*

**Hypothesis 2-** *Support staff who received the workshop will have significantly greater reductions in a) thought suppression and b) experiential avoidance/psychological inflexibility in comparison to support staff in the control condition (at post intervention and follow up).*

**Hypothesis 3-** *There will be greater improvements in levels of: a) psychological distress; b) well-being; c) thought suppression and d) experiential avoidance/psychological inflexibility, as indicated by a larger effect size, amongst those with pre-intervention scores that indicate clinically significant distress, as compared with the all participants' results.*

### 3.4 Presentation of study in thesis

A journal article is presented in the next chapter summarising the study (chapter 4). Following on from this, an extended methodology chapter will present the study methodology, aims and hypotheses in detail (chapter 5). The extended results chapter presents additional results to those provided in the journal article as well as providing more detail about those results that were previously presented (chapter 6). Finally, there is an extended discussion chapter where aspects of the study are considered in greater detail (chapter 7). The limitations and possible reasons for significant and non-significant findings, and suggestions for future areas of research are discussed.

#### **4. Journal Article: Main Thesis Research**

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**Title: Acceptance and Mindfulness-based Stress Management for support staff  
caring for individuals with intellectual disabilities**

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## **Abstract**

Support staff working with individuals with Intellectual Disability (ID) and challenging behaviour experience high levels of work-related stress. Preliminary theoretical and experimental research has highlighted the potential suitability of acceptance and mindfulness approaches for addressing support staff stress. This study examines the effectiveness of an acceptance and mindfulness-based stress management workshop on the levels of psychological distress and well-being of support staff working with individuals with ID and challenging behaviour. Support staff (n=120) were randomly assigned to a workshop intervention condition (n=66) or to a waiting list control condition (n=54). Measurements were completed at three time points (pre-, post and six week follow-up) for: psychological distress, well-being, perceived work stressors, thought suppression, emotional avoidance/psychological inflexibility. Main Findings: The results showed that for psychological distress there was a significant interaction effect in favour of the workshop. Thought suppression was found to reduce significantly in the intervention group post to follow-up, although no significant change was found in well-being or experiential avoidance/psychological inflexibility. For individuals with higher levels of psychological distress at pre-intervention ( $GHQ > 11$ ), larger effect sizes for the interaction were found, suggesting a greater impact of the workshops on the most distressed. Overall, results demonstrated support for the effectiveness of an acceptance and mindfulness-based intervention in reducing distress.

**Keywords:** Intellectual Disability; Learning Disability; Mindfulness; Acceptance and Commitment Therapy; Support Workers.

## **1. Introduction**

### *1.1 Background*

Support staff who work in intellectual disability (ID) services regularly encounter emotionally and physically challenging situations in their working environment (Blumenthal, Lavender, & Hewson, 1998). In a UK survey, approximately one third reported clinically significant levels of psychological distress (Hatton et al., 1999). Research suggests an extensive range of stress-inducing factors for such staff (Devereux, Hastings, & Noone, 2009). These include: their client characteristics (Dyer & Quine, 1998) including the nature of their challenging behaviours (Jenkins, Rose, & Lovell, 1997); the long hours, work load and staff shift patterns (White, Edwards, & Townsend-White, 2006); the nature of working relationships and the amount of support staff receive (Rose, Madurai, Thomas, Duffy, & Oyeboode, 2010); factors relating to the organisational structure and climate (Blumenthal et al., 1998), and career development issues, including job security fears, lack of appropriate training or progression (Hatton et al., 2001).

The stress levels and well-being of support staff are of critical importance, not only for the individual and the service user, but also the wider service (Skirrow & Hatton, 2007). Those working in high stress environments are more likely to use mal-adaptive coping strategies such as substance misuse, poor diet and other unhealthy lifestyle factors (Piko, 1999). As well as being linked to mental health difficulties, stress has also been found to affect immune system function (Khansari, Murgo, & Faith, 1990). Stressed individuals are more likely to develop chronic diseases and conditions such as cancer, cardio-vascular disease and diabetes as well as colds and coughs (Melamed, Shirom, Toker, Berliner, & Shapira, 2006). Stressed support staff are less productive, less likely to assist clients in tasks,

and have fewer positive social interactions with them (Hastings & Remington, 1994; Lawson & O'Brien, 1994; Rose, Jones, & Fletcher, 1998). Evidence also suggests that in work environments with high staff stress levels there is an increased risk of incidents of both physical and mental abuse towards individuals with ID (White, Holland, Marsland, & Oakes, 2003).

Stressed support staff inevitably impact on the wider organisation in terms of higher absenteeism rates and staff resignations/turnover (Thompson & Rose, 2011), thus resulting in considerable financial costs in staff cover and recruitment, as well as low staff morale. Hence quality and continuity of ID care is directly affected (Lin et al., 2009).

Despite mounting evidence highlighting the causes of staff stress, its negative impact, and the responsibility that organisations have for employees' well-being (Leka, Jain, Zwetsloot, & Cox, 2010), to date there has been little research addressing this in support staff. While a recent meta-analysis revealed that cognitive behavioural therapy (CBT)-based problem-solving approaches are the most established interventions for work-related stress (Richardson & Rothstein, 2008), there have only been a few studies applying such approaches to support staff in ID services (Gardner, Rose, Mason, Tyler, & Cushway, 2005; Innstrand, Espnes, & Mykletun, 2004).

In conventional CBT, emphasis is often placed on changing the situations which relate to the difficult emotions, or processing such thoughts, feelings, and sensations differently through thought challenging/cognitive restructuring (Longmore & Worrell, 2007). Support staff in ID, however, commonly face distressing experiences (Robertson et al., 2005), where it may not be possible to change, challenge, or problem solve the resulting

thoughts and emotions. Indeed, it has been proposed that analysing and unsuccessfully struggling to problem solve experiences that cause distress can actually lead to further psychological distress (Hayes, Strosahl, & Wilson, 1999).

Recent studies have suggested that carers of individuals with ID who use maladaptive emotion-focused coping strategies such as thought suppression, avoidance of negative emotions, thoughts and bodily sensations have higher stress levels and are more likely to experience "burnout" (Devereux, Hastings, Noone, Firth, & Totsika, 2009; MacDonald, Hastings, & Fitzsimons, 2010). It has been argued that Mindfulness-based Interventions (MBI) such as Acceptance and Commitment Therapy (ACT) may be particularly applicable to this population (Noone & Hastings, 2011). They specifically aim to target these maladaptive emotion-focused coping strategies and promote an attitude of acceptance and being with difficult thoughts and feelings (MacDonald et al., 2010).

Research on the application of mindfulness-based interventions with support staff reports positive findings for both staff and the individuals with ID they support. Mostly it has been limited by the influence of potential confounding variables, small sample sizes and a lack of control comparison. Preliminary results suggest that being a more mindful carer may be associated with increased client happiness and ability to learn, reduced levels of aggression, non-compliance, self-injury and injuries to carers and peers; as well as increased social and community integration (Singh, Lancioni, Winton, Fisher, et al., 2006; Singh et al., 2007; Singh et al., 2004). In addition, the training of carers in Mindfulness may enhance the effects of behavioural management training (Singh, Lancioni, Winton, Curtis, et al., 2006), and reduce the need for the use of physical restraints and stat medications with clients (Singh et al., 2009). Research also indicates that MBI offers benefits for support staff, including

improved psychological health and satisfaction with caring and reduced stress (Noone & Hastings, 2009; Noone & Hastings, 2010; Singh et al., 2006; Singh et al., 2009); and that this can occur despite staff perceptions of level of stressors in the work environment being unchanged (Noone & Hastings, 2009; 2010). This latter result was hypothesised to have resulted from an increase in psychological resilience through targeting maladaptive emotion-focused coping strategies (i.e. experiential avoidance/psychological inflexibility). Preliminary evidence also suggests that acceptance and mindfulness based workshops may have the greatest impact on those with the highest levels of psychological distress pre-intervention (Bethay, 2010; Flaxman & Bond, 2010b). These are promising findings. However, Noone and Hastings (2009; 2010) cautioned that their own results need to be considered in the context of limitations, such as minimal attempts to control for confounding variables in the experimental designs, small sample sizes, and lack of a control group.

### *1.2 Aims of the study*

The current study will aim to further explore the application of an acceptance and mindfulness-based intervention with support staff working in ID services, using a design that aims to address the limitations of previous research in this area. The impact of the workshop intervention on the psychological distress and wellbeing of participants, as compared with waiting list control group participants, will be investigated. In addition, this study will aim to enhance understanding of potential process variables influencing the outcome of the intervention. This study aims to address the following hypotheses:

### *1.3 Hypotheses:*

- 1. The acceptance and mindfulness-based workshop will significantly reduce psychological distress and increase well-being in support staff (post intervention and follow up) working with individuals with ID in comparison with a control group.*
- 2) Support staff who receive the workshop will have significantly greater reductions in thought suppression and experiential avoidance/psychological inflexibility in comparison to support staff in the control condition (at post intervention and follow up).*
- 3) There will be greater improvements in levels of: a) psychological distress; b) well-being; c) thought suppression and d) experiential avoidance/psychological inflexibility, amongst those with pre-intervention scores that indicate clinically significant distress, as indicated by larger effect sizes.*

## **2. Method**

### *2.1 Design*

The study employed a longitudinal mixed between-within subjects design. Previous research has suggested that acceptance and mindfulness-based and ACT interventions have a medium effect size (Cohen's  $d$  of around 0.6) (Cohen, 1988; Hayes, Luoma, Bond, Masuda, & Lillis, 2006). To ensure sufficient power to detect a medium effect size ( $d=0.6$ ), alpha level of .05 and power of .80, employing a Mixed ANOVA, a sample size of 45 in each group was required (Clark-Carter, 1997).

### *2.2 Participants*

#### *2.2.1 Participant recruitment*

Independent care organizations working with individuals with ID were approached by telephone and through personal contact and invited to participate in the study. They were asked to provide a list of names of potential support staff involved in the direct care of individuals with ID who displayed behaviour that challenged. Inclusion criteria were that participants were over 18 years, able to provide informed consent, and had at least six months experience of working within ID services. All potential participants were then randomly assigned (see 2.2.2) and asked to contact their line managers if they would like to participate. Participants in the waiting list control condition were informed they would be offered the opportunity to attend a workshop following the end of data collection.

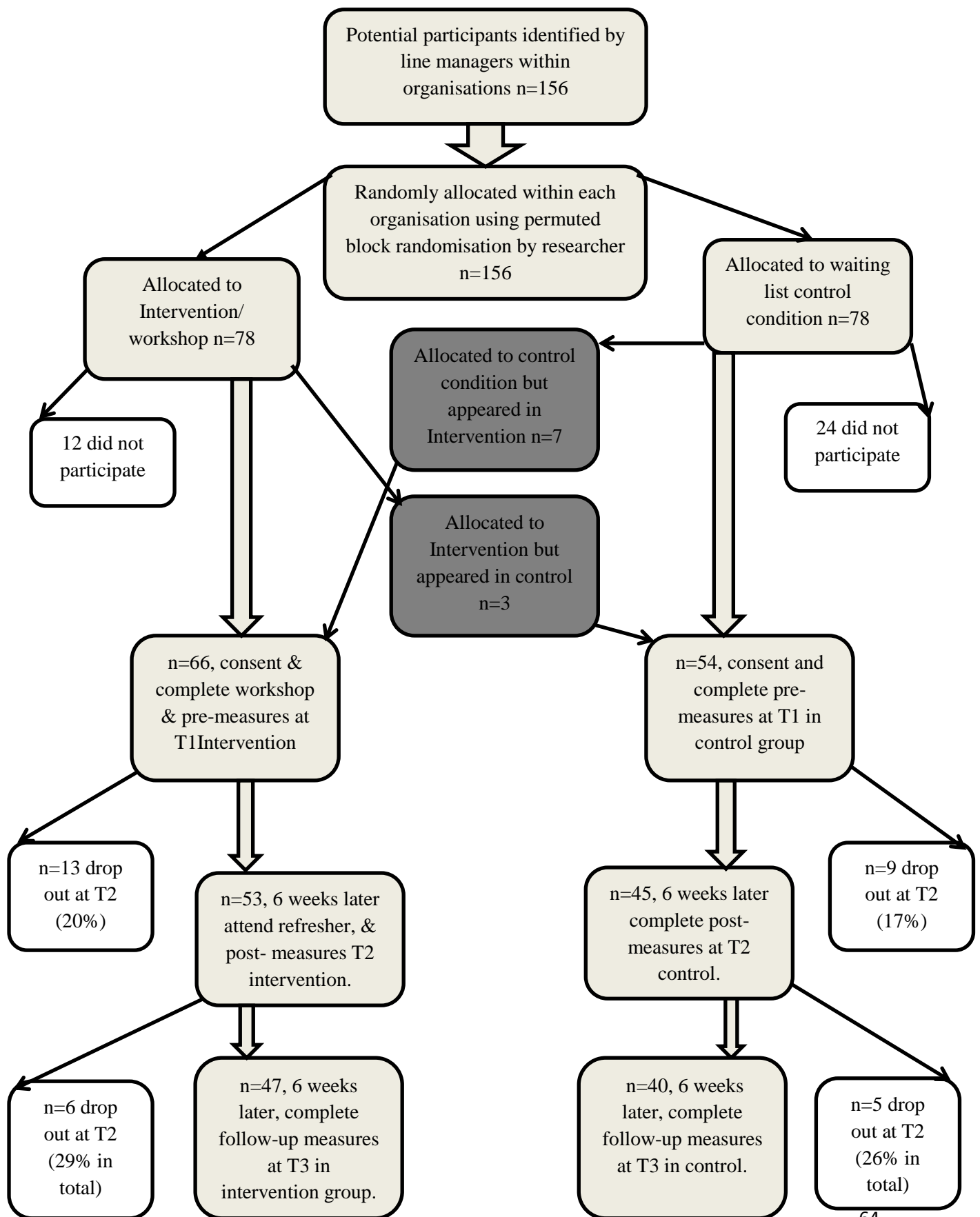
### *2.2.2 Randomisation Procedure*

Permuted block randomisation was used to generate quasi-random numbers to allocate participants ([www.jerrydallal.com/random/random\\_block\\_size.htm](http://www.jerrydallal.com/random/random_block_size.htm)). Seven independent voluntary organisations participated in the study, and 156 potential participants were identified. Of these, 78 were randomly allocated to intervention and 78 to control condition. On being invited to participate, 120 participants consented- leaving 66 remaining in the intervention (workshop) condition and 54 in the control condition.

The line managers within the participating organisations coordinated the release of support staff to participate in the workshops and the distribution, completion and collection of the questionnaire measures. Despite the efforts to randomly allocate participants to conditions, seven participants who were originally allocated to the control condition attended the intervention/workshop, and three participants who were allocated to the intervention condition completed measures in the control condition. Anecdotal reports from line managers as to the reasons for misallocation and attrition rates (see 2.5.3) were given as difficulties with covering shifts due to sickness, annual leave and the need for emergency cover coupled with a lack of awareness of the random allocation process.



**Figure 1.** Overview of the design of the study, and participants at each stage.



## 2.3 Measures

### 2.3.1 Demographic Information

Demographic data were collected on gender, age, education, hours of working, and years of experience working in ID services.

### 2.3.2 Primary Outcome Measure

**Psychological distress:** The *General Health Questionnaire-12 (GHQ-12)* (Goldberg, 1992) contains 12 items and displays good content, construct validity and internal consistency (Goldberg & Bridges, 1987; Goldberg & Williams, 2006). Likert scoring was used, with higher scores indicating higher levels of psychological distress. In the present study the Cronbach's alpha scores were .872 at pre, .774 at post and .791 at follow up.

### 2.3.3 Secondary Outcome Measures

**Psychological well-being:** The *Warwick-Edinburgh Mental Well-Being Scale (WEMWBS)* (Tennant et al., 2007) consists of 14 items rated on a five-point scale with higher scores indicating greater well-being. It has been standardised on a UK population and measures positive mental health, including subjective experience of happiness and life satisfaction, and perspectives on psychological functioning and personal relationships (Lindsay, Strand, & Davis, 2011). This scale has good content validity, has moderately high correlations with other mental health scales (Tennant et al., 2007), and displays good levels of internal consistency, having a Cronbach's alpha of 0.91 (Tennant et al., 2007). In the present study the Cronbach's alpha scores were .908 at pre-, .876 at post, and .887 at follow-up.

**Staff perception of work stressors:** The *Staff Stressor Questionnaire (SSQ)* (Hatton et al., 1999) contains 33 items relating to potential work stressors in ID service environments including service user related factors, organisational factors and support related factors. It provides a total score based on the sum of the ratings for all 33 items, with higher scores indicating higher perceived levels of work stressors. It has good internal reliability (Devereux et al., 2009; Hatton et al., 1999), and in the present study the Cronbach's alpha score was .921 at pre-, .922 at post and .918 at follow-up.

#### *2.3.4 Process Measures*

**Experiential avoidance/psychological inflexibility:** the *Acceptance and Action Questionnaire-II (AAQ-II)* (Bond et al., 2011) was used to measure the extent to which support staff were able to experience upsetting or difficult thoughts, feelings and emotions without trying to suppress or avoid them. The *AAQ-II* comprises 7 items with a seven-point response format and was designed as an updated version of the *AAQ* (Hayes, Strosahl, Wilson, Bissett, Batten, et al., 2004). The *AAQ-II* correlates at .82 with the *AAQ* and has satisfactory structure, reliability and validity (Hayes, Strosahl, Wilson, Bissett, Pistorello, et al., 2004). This is a one factor measure, with higher scores indicating greater experiential avoidance/psychological inflexibility. In the present study the Cronbach's alpha scores were .860 at pre-, .830 at post and .849 at follow-up.

**Thought suppression:** the *White Bear Suppression Inventory (WBSI)* (Wegner & Zanakos, 1994). Thought suppression is the process of deliberately trying to stop thinking about certain thoughts. Participants were asked to rate how strongly they agree with 15 statements (e.g. "I wish I could stop thinking about certain things," and "I always try to put problems out of my

mind") on a five-point scale (1 = disagree to 5 strongly agree). The *WBSI* has been found to have acceptable levels of internal consistency ( $\alpha = .87$  to  $.89$ : Wegner & Zanakos, 1994). In the present study the Cronbach's alpha values were  $.927$  at pre-,  $.925$  at post and  $.915$  at follow-up.

## *2.4 Procedure*

### *2.4.1 Acceptance and Mindfulness Workshop*

The intervention consisted of an Acceptance and Mindfulness Workshop derived from a protocol based on the core principles of Acceptance and Commitment therapy (ACT: Bond & Hayes, 2002; Bond & Bunce, 2000; Hayes et al., 1999), and adapted for use within ID services by Noone and Hastings (2009; 2010). A detailed treatment protocol is available in Bond and Hayes (2002), [see also Noone and Hastings, 2009 and Bethay, Wilson and Moyer, 2009]. The major components of the intervention include increasing mindfulness and psychological acceptance of thoughts, feelings and sensations, reducing the literal control of thoughts and language over behaviour, and defining values and creating goals (Bond & Hayes, 2002). It is proposed that increases in mindfulness and acceptance free up cognitive resources, and that value driven behaviour may aid increased behaviour activation. The overall aim of the workshop was to change the way support staff reacted to stressful situations, such as supporting a client with ID and who displayed behaviour that challenges. The workshop involved the use of didactic teaching, group discussions, written exercises, the use of metaphors, short video presentations and practical and interactive exercises - all of which aimed to illustrate the key components of the intervention. Mindfulness exercises were practised during sessions, and given as homework assignments to be completed between

sessions. The intervention consisted of a full day workshop, followed by a half day refresher session after six weeks. Group sizes varied between 3 and 10 participants.

#### *2.4.2 Waiting-list control*

Participants assigned to the waiting list control group received no intervention. After the data collection was complete within an organisation, these participants were invited to attend an acceptance and mindfulness workshop.

#### *2.4.3 Completion of Measures*

All participants completed measures at the same time points (see Figure 1). In the intervention group, participants completed measures prior to the start of the workshop (time 1), then after six weeks at the refresher session completed post-measures (time 2). Follow-up measures were completed after a further six weeks (time 3). Line managers co-ordinated the distribution and return of all questionnaires for the control condition and follow-up for all participants.

### *2.5 Statistical analysis*

#### *2.5.1 Preliminary Analysis*

Preliminary data screening operations were performed using SPSS (version 19) (Fidell & Tabachnick, 2006). Missing items were below 0.5% with no observable pattern.

### 2.5.2 Demographic information

The participant characteristics are displayed in Table 1. Non parametric statistical analysis was used to further explore the demographic data as they were not normally distributed. Mann Whitney U tests found no significant differences between the intervention and control groups in relation to age, experience of working ID services or hours worked per week. Chi Square tests found no significant differences between the two groups in relation to gender, professional qualifications or education.

**Table 1.** *Participants' demographics by intervention and control group.*

	<b>Intervention</b>		<b>Control</b>		<b>Total sample</b>	
	Median	Range	Median	Range	Median	Range
Age (years)	43	19-69	44	22-64	43	19-69
Years of experience working in ID	6.5	0.5-25	6.4	0.9-30	6.4	0.5-30
Number of hours worked per week	37	9.5-45	37.5	12-45	37.5	9.5-45
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
Male	19	28.8	12	22.2	31	25.8
Female	47	71.2	42	77.8	89	74.2
Secondary school education only	26	39.4	25	46.3	51	42.5
Higher Education college	25	37.9	21	38.9	46	38.3
University education	15	22.7	8	14.8	23	19.2
Professional qualification in ID area.	30	45.5	24	44.4	54	45
No professional qualification	36	54.5	30	55.6	66	55

Note: N=frequency

### 2.5.3 Attrition

There were similar levels of attrition from both the intervention and control group (see figure 1). Total attrition at time 3 was 27.5% (33 out of 120). Little's MCAR Chi square test showed the data to be missing completely at random (MCAR)(Schlomer, Bauman, & Card, 2010) considering all cases and outcome measures MCAR ( $p>.05$ )( $X^2=30.686$ ,  $df=27$ ,

p=.284). The missing data values were replaced using Expectation Maximization a Maximum Likelihood estimation technique (Mayer, Muche, & Hohl, 2012).

#### *2.5.4 Main Statistical Analysis*

The analysis aimed to compare the differences in outcomes between the intervention group and the waiting list control group across the three time points (pre-, post and six week follow-up). The data met the assumptions needed for parametric statistical analysis (Fidell & Tabachnick, 2006). Exploratory Multiple Linear Regression was undertaken to identify variables that contributed to overall variance for the dependent variables (*GHQ* and *WEMWBS*) in order to identify potential covariates. Correlations between each variable were examined to ensure that they did not exceed .9, and inspection of Tolerance and Variance Inflation Factors (VIF) concluded that multicollinearity assumptions were not violated (Field, 2011, p.223). Mixed ANOVAs were used, with each dependent variable analysed independently. For significant effects, post hoc Bonferroni repeated measures comparisons across time were completed. Effect sizes (ES) were reported using partial eta squared ( $\eta^2$ ) using guidelines proposed by Cohen (1988).

### 3. Results

#### 3.1 Main Results

##### **Hypothesis 1: Psychological Distress and Well-being**

##### **Psychological Distress: General Health Questionnaire**

##### *Testing for covariance*

Three exploratory regression analyses were conducted to examine whether any of the following made a significant contribution to the variance in General Health Questionnaire (*GHQ*) scores over the three time points: *Acceptance and Action Questionnaire (AAQ-II)*, *White Bear Suppression Inventory (WBSI)*, *Staff Stressor Questionnaire (SSQ)*. The results revealed that the *AAQ-II* scale scores significantly contributed to overall variance accounted for in *GHQ* scores at time 1 ( $R^2=.235$ , adjusted  $R^2 = .201$ ,  $F(5,114) = 6.987$ ,  $p<.001$ ), time 2 ( $R^2=.247$ , adjusted  $R^2 = .214$ ,  $F(5,114) = 7.478$ ,  $p<.001$ ), and time 3 ( $R^2=.174$ , adjusted  $R^2 = .138$ ,  $F(5,114) = 4.819$ ,  $p<.001$ ).

In order to determine whether *AAQ-II* scores impacted differentially on the intervention and control groups across the three time points, a mixed ANOVA was undertaken. As no significant interaction effect was found (see hypothesis 2), *AAQ-II* scores were not included as a co-variate in the subsequent analysis.

A mixed ANOVA was undertaken to explore the differences in psychological distress as measured by the *General Health Questionnaire (GHQ)*. A significant interaction effect for time \* condition was found [Wilks' Lambda=.879,  $F(2,117)=8.061$ ,  $p=.001$ , multivariate partial eta squared,  $\eta^2=.121$ ], which is considered a medium to large effect size (Cohen, 1988). This suggests there was a significant difference in the pattern of scores between



participants who had received the intervention and those in the control group over the three time points (see Table 2).

Post hoc Bonferroni procedures for repeated measures comparisons across time found that in the intervention condition there was a significant reduction in *GHQ* scores between pre-and post- intervention ( $p=.001$ ); a significant increase between post and follow-up ( $p=.0001$ ) and a significant reduction between pre- and follow-up scores ( $p=.048$ ). In the control group there was also a reduction of *GHQ* scores between pre-and post ( $p=.048$ ), and between pre and follow up ( $p=.017$ ).

### **Well-Being: Warwick Edinburgh Mental Well-being Scale**

Three regression analyses were conducted to examine which factors made a significant contribution to the variance in *WEMWBS* scores over the three time points. *AAQ-II* scores significantly contributed to overall variance accounted for in *WEMWBS* scores at time 1 ( $R^2=.298$ , adjusted  $R^2 = .268$ ,  $F(5,114) = 9.694$ ,  $p<.001$ ), time 2 ( $R^2=.277$ , adjusted  $R^2 = .246$ ,  $F(5,114) = 8.744$ ,  $p<.001$ ), and time 3 ( $R^2 = .206$ , adjusted  $R^2 = .171$ ,  $F(5,114) = 5.916$ ,  $p<.001$ ). As no significant interaction for time \* condition had been found previously for the *AAQ-II*, these were not included as covariates in the subsequent analysis of the *WEMWBS* scores.

A Mixed ANOVA found no significant interaction effect for the *WEMWBS* scores for time \* condition [Wilks' Lambda=.966,  $F(2,117)=2.057$ ,  $p=.132$ , multivariate partial eta squared,  $\eta^2=.034$ ].

**Table 2.** Outcome measure means and standard deviations across the three time points for all participants.

	<b>GHQ</b>	<b>SSQ</b>	<b>WEMWBS</b>	<b>AAQ-II</b>	<b>WBSI</b>
<b>Intervention Group (n=66)</b>					
<b>Time 1 (pre)</b>	M=12.30 SD=(5.95)	M=66.5 SD=(18.62)	M=51.06 SD=(8.14)	M=19.10 SD=(7.53)	M=44.88 SD=(12.02)
<b>Time 2 (post)</b>	M=10.16 SD=(3.37)	M=66.13 SD=(17.71)	M=50.91 SD=(5.98)	M=18.73 SD=(6.54)	M=44.80 SD=(11.16)
<b>Time 3 (Follow-up)</b>	M=10.89 SD=(3.40)	M=67.34 SD=(17.88)	M=52.01 SD=(5.20)	M=19.14 SD=(6.59)	M=43.21 SD=(10.95)
<b>Control Group (n=54)</b>					
<b>Time 1 (pre)</b>	M=12.07 SD=(4.48)	M=66.37 SD=(19.32)	M=50.76 SD=(7.53)	M=18.89 SD=(7.45)	M=42.61 SD=(12.19)
<b>Time 2 (post)</b>	M=11.47 SD=(4.10)	M=66.34 SD=(18.88)	M=49.88 SD=(6.29)	M=18.85 SD=(7.14)	M=43.09 SD=(11.29)
<b>Time 3 (Follow-up)</b>	M=11.13 SD=(3.87)	M=68.21 SD=(18.35)	M=50.28 SD=(7.11)	M=19.18 SD=(6.67)	M=43.39 SD=(10.75)

Notes: M=mean SD= Standard Deviation. GHQ=General Health Questionnaire, SSQ=Staff Stressor Questionnaire, WEMWBS=Warwick & Edinburgh Mental Well Being Scale, AAQ-II=Acceptance and Action Questionnaire, WBSI=White Bear Suppression Inventory

## **Hypothesis 2- Thought Suppression and Experiential Avoidance**

### **Thought Suppression**

A Mixed ANOVA analysis of *WBSI* scores found a significant interaction effect for time \* condition [Wilks' Lambda=.920,  $F(2,117)=5.110$ ,  $p=.007$ , multivariate partial eta squared,  $\eta^2=.080$ ]. This is a medium effect size. Post Hoc analysis found a significant

reduction in thought suppression (*WBSI*) scores between post and follow-up in the intervention group ( $p=.005$ ). No other significant results were found.

### **Experiential Avoidance/Psychological Flexibility**

As noted under hypothesis 1, a Mixed ANOVA analysis found no significant interaction effect for time \* condition [Wilks' Lambda=.998,  $F(2,117)=.106$ ,  $p=.900$ , multivariate partial eta squared,  $\eta^2=.002$ ] for the *AAQ-II*.

### **Hypothesis 3- Clinically Distressed Group**

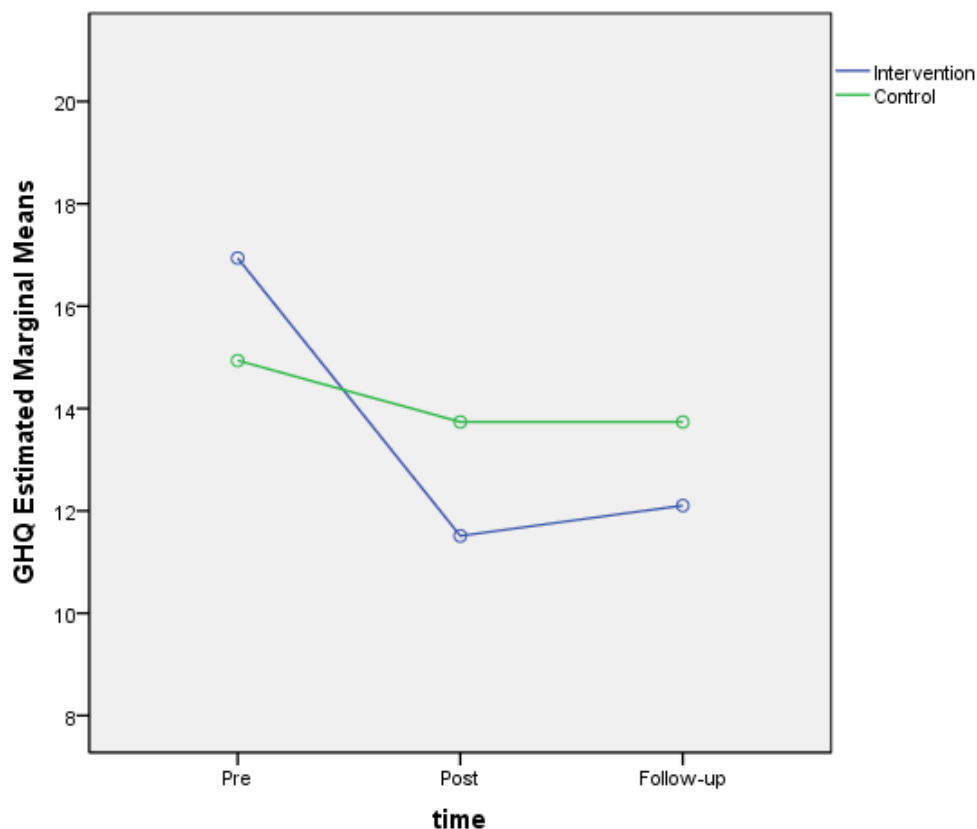
#### **Analysis for Participants with pre-intervention GHQ scores >11**

The full data set included support staff with non-clinically significant levels of psychological distress. Additional exploratory analyses were undertaken to examine the effect of the intervention for individuals who exhibited higher levels of psychological distress. Analyses were re-run for participants with a pre- (time point 1) *GHQ-12* score greater than 11, which previous research has shown to predict the presence of a clinically significant level of psychological distress, with 78.9% sensitivity and 77.4 % specificity (Goldberg et al., 1997). Previous research has found that workshop interventions, similar to that used in the present study, have had greater effect on individuals with higher levels of psychological distress at pre-intervention (Bethay, 2010; Flaxman & Bond, 2010b; Noone & Hastings, 2010). Thirty three participants in the intervention group and 32 in the control group scored above this *GHQ*>11 cut off point. Mean scores and standard deviations on the outcome measures for these participants are displayed in Table 3.

## Psychological Distress

A Mixed ANOVA analysis found a significant interaction effect for *GHQ* scores for time \* condition [Wilks' Lambda=.662,  $F(2,62)=15.805$ ,  $p<.001$ , multivariate partial eta squared,  $\eta^2=.338$ ]. This yielded a very large effect size, compared to the medium to large effect size found when analysing all participants' data. Post Hoc analysis found a similar pattern to the analysis of all participant data, with the intervention group showing significant reductions in psychological distress between time 1 and 2 ( $p<.001$ ), and time1 and 3 ( $p<.001$ ), with a significant increase in distress between 2 and 3 ( $p=.040$ ). The control group experienced significant reductions between time 1 to 2 ( $p=.002$ ), and 1 to 3 ( $p<.001$ ), but no significant change between time 2 and time 3.

**Figure 2.** *Participants with GHQ>11 at time 1 across the three time points for intervention and control group conditions.*



**Table 3.** Outcome measure means and standard deviations across the three time points for the participants with clinically high scores on the GHQ at time 1.

	GHQ	SSQ	WEMWBS	AAQ-II	WBSI
<b>Intervention Group (n=33)</b>					
<b>Time 1 (pre)</b>	M=16.94 SD=(4.60)	M=71.64 SD=(19.86)	M=46.82 SD=(7.57)	M=22.32 SD=(6.95)	M=46.48 SD=(13.30)
<b>Time 2 (post)</b>	M=11.51 SD=(3.70)	M=68.74 SD=(18.34)	M=48.54 SD=(6.04)	M=19.82 SD=(6.63)	M=45.44 SD=(12.70)
<b>Time 3 (Follow-up)</b>	M=12.10 SD=(3.66)	M=69.32 SD=(19.08)	M=50.40 SD=(5.19)	M=20.49 SD=(6.91)	M=42.51 SD=(12.71)
<b>Control Group (n=32)</b>					
<b>Time 1 (pre)</b>	M=14.94 SD=(3.12)	M=68.00 SD=(17.66)	M=49.25 SD=(6.84)	M=21.41 SD=(6.70)	M=45.16 SD=(10.37)
<b>Time 2 (post)</b>	M=13.74 SD=(3.47)	M=68.01 SD=(17.66)	M=48.46 SD=(5.95)	M=21.47 SD=(6.44)	M=45.50 SD=(9.92)
<b>Time 3 (Follow-up)</b>	M=13.74 SD=(2.73)	M=69.68 SD=(17.82)	M=49.35 SD=(7.25)	M=21.50 SD=(6.09)	M=45.68 SD=(9.01)

Notes: M=mean SD= Standard Deviation. GHQ=General Health Questionnaire, SSQ=Staff Stressor Questionnaire, WEMWBS=Warwick & Edinburgh Mental Well Being Scale, AAQ-II=Acceptance and Action Questionnaire, WBSI=White Bear Suppression Inventory

### Psychological Well-being

No significant interaction effect for time by condition was found for *WEMWBS* scores [Wilks' Lambda=.918,  $F(2,62)=2.747$ ,  $p=.072$ , multivariate partial eta squared,  $\eta^2=.081$ ].

### **Thought Suppression**

A Mixed ANOVA showed a significant interaction effect for time by condition on thought suppression [Wilks' Lambda=.823,  $F(2,62)=6.66$ ,  $p=.002$ , multivariate partial eta squared,  $\eta^2=.177$ ]. This represented a large effect size, compared to the medium effect size found in the analysis of all participant data. Post hoc analysis found a significant drop in *WBSI* scores in the intervention group between time 2 and 3 ( $p=.002$ ), and between time 1 and 3 ( $p=.028$ ).

### **Experiential Avoidance/Psychological Inflexibility**

A Mixed ANOVA analysis found no significant interaction effect for condition by time [Wilks' Lambda=.913,  $F(2,62)=2.948$ ,  $p=.06$ , multivariate partial eta squared,  $\eta^2=.087$ ].

## 4. Discussion

### 4.1 Discussion of the results

The main aim of this study was to examine the effect of an acceptance and mindfulness-based stress management workshop on levels of psychological distress and well-being of support staff working with individuals with ID and behaviours that challenge. The results highlighted the positive impact of the workshop on support staffs' psychological distress, with a significant interaction effect of time by condition. Psychological distress in all support staff reduced significantly from pre-to follow-up, despite their perceived level of work stressors increasing. The benefits of the intervention relative to the control group were more apparent amongst those who had baseline scores indicative of clinically significant distress. This result is consistent with previous research which implemented similar workshop based interventions to address work-related stress (Bond & Bunce, 2003; Brinkborg, Michanek, Hesser, & Berglund, 2011; Flaxman & Bond, 2010a, 2010b), and in ID services (Bethay, 2010; Noone & Hastings, 2009; Noone & Hastings, 2010; Schwetschenau, 2009). The significant improvements in psychological distress in the intervention group were maintained at follow-up, although between post and follow-up there was a significant increase in *GHQ* score. One possible explanation may be that participants in the intervention group stopped practising the techniques and skills they had learnt in the workshops. Regular practising of mindfulness may be necessary in order to fully derive benefits such as reduced psychological distress and improved well-being (Carmody & Baer, 2008; Huppert & Johnson, 2010; Kabat-Zinn, 2003). Alternatively, this increase in distress between post and follow-up may have been due to participants being unable to retain workshop information, this being one of the major challenges of providing effective training workshops (Baldwin & Ford, 1988).

There was also a significant reduction in psychological distress in the control group between pre-and post. This reduction may be due to a number of factors, including the control group participants' expectation of attending a stress management workshop in the future (Schwetschenau, 2009). There are also possible direct and indirect contamination effects. A direct effect may be that support staff in the intervention group may have conveyed techniques and skills learned in the workshop. Alternatively, indirect effects could be due to support staff in the intervention group being less stressed, which may have reduced overall workplace stress, thus having a beneficial effect for control group colleagues. There are also external influences, such as changes in client, work or home related factors (Mutkins, Brown, & Thorsteinsson, 2011). The present study however, found that changes in perceived levels of work stressors did not contribute to the variance explained in *GHQ* scores. This factor is therefore unlikely to explain the changes in psychological distress over time in either the control or intervention groups. An alternative explanation for the reduction in the control group *GHQ* scores may be a regression to mean effect. This effect, where individual scores revert towards the mean over time, has been found to occur in measures of mental health, resulting in the scores of control groups reducing in longitudinal studies (Morton & Torgerson, 2003). The effect may have impacted on both intervention and control group scores in the present study (Bland & Altman, 1994).

Support was not found for any positive impact of the workshop on support staff well-being, as indicated by the lack of a significant interaction effect for condition by time on *WEMWBS* scores. This could be because the *WEMWBS* may not be sensitive enough to detect significant changes in well-being longitudinally, as its validity has been established using cross-sectional analysis (Bartram, Sinclair, & Baldwin, 2012). In addition, the scores in the current study were close to the population median (51), highlighting that there may not have



been much possibility for improvement in well-being as measured by the *WEMWBS* (Tennant et al., 2007).

In addition, this study sought to provide an exploration of the underlying process variables that may account for any changes in psychological distress that resulted from the acceptance and mindfulness workshop. In terms of thought suppression, the results suggested a delayed positive impact of the workshop in the intervention group with a significant drop in thought suppression between time 2 (post) and time 3 (follow-up). It is unclear if this result was due to a delayed effect of the workshop, or simply reflected a regression to the mean effect (Bland & Altman, 1994).

One of the main goals of the acceptance and mindfulness-based workshop was to reduce experiential avoidance, or ‘psychological inflexibility’ (Hayes et al., 2006). However the current study, found no significant changes in these factors. This result is at odds with previous research which has applied similar treatment protocols and has found significant changes, although these studies used earlier versions of the *AAQ* than the seven-item version used in the current study (Bond & Bunce, 2000; Flaxman & Bond, 2010a, 2010b). This may indicate that the *AAQ-II* was not sensitive enough to detect any change. The *AAQ-II* has recently been revised due to concerns regarding its psychometric properties (Bond et al., 2011). However, as yet there has been little published research which implements the revised *AAQ-II* as a process measure. Alternatively, the lack of significant results may be because the current study included psychologically healthy participants (Flaxman & Bond, 2010). As experiential avoidance is theorised as being a way of reducing psychological distress, then the lower levels of psychological distress at baseline may indicate pre-existing lower experiential avoidance, with less scope for the intervention to reduce the scores (floor effect).

Additionally, it has been proposed that multi-factor population specific versions of the AAQ may be more effective at detecting significant therapeutic changes in avoidance or ‘psychological inflexibility’ (Hayes, Strosahl, Wilson, Bissett, Batten, et al., 2004). For instance, this has been found in chronic pain populations (McCracken & Zhao-O'Brien, 2010). Alternatively the workshop may not have significantly altered experiential avoidance. This is discussed further in section 4.2

The study also explored the impact of the intervention on participants with clinically high levels of psychological distress at baseline. In terms of the process outcome measures, there was a similar pattern of results to those observed for the all-participant analysis, but with greater effect sizes. Similarly, a larger effect size was found for the interaction between condition and time on psychological distress, compared with the analysis of all participants’ data. This suggests a greater impact of the acceptance and mindfulness-based workshop on the most psychologically distressed support staff, i.e. those who are at greater risk of burn-out (Mutkins et al., 2011). While these analyses were underpowered based on power analysis conducted for this study, which increases the likelihood of a type-II error: (Fidell & Tabachnick, 2006), the fact that significant results and large effect sizes were found, suggests that the analysis was adequately powered to find large effect sizes. The result is also consistent with previous research (Bethay, 2010; Flaxman & Bond, 2010b; Noone & Hastings, 2010). It suggests that this group of staff could benefit from such mindfulness interventions, although further research with larger sample sizes would be needed to confirm this.

#### *4.2 Limitations of the study*

The study had a number of limitations, some of which have been mentioned in section 4.1, such as a potential lack of sensitivity of some outcome measures to longitudinal changes (Guyatt, Walter, & Norman, 1987) and the influence of floor effects (O'Connor, Cano, Thompson, & Hobart, 2004). Another limitation was the high attrition rate of 27.5% across all participants at follow-up, which may have been partly due to the reliance on staff line managers to coordinate the distribution and return of the questionnaires. The rate might have been reduced by contacting participants directly, factoring in additional time to collect missing data, sending questionnaires by post, or conducting telephone or home interviews (Young, Powers, & Bell, 2006).

Further limitations were that the randomisation procedure occurred before participants had consented to take part (Schulz, Altman, & Moher, 2010), there was no allocation concealment, and the allocation of staff to the two conditions was not fully adhered to by line managers. The latter factor is a particular source of potential bias, as the reason the participants changed conditions is unknown. They may have either been particularly motivated to attend the workshop, or the line manager may have been keen for them to attend or not attend.

The workshop format, provided over one day with a half day refresher, may have been another limitation. Research has found that the opportunity to practise skills learnt during training within the work environment is a more effective way to learn new knowledge and skills. This can be achieved by means of combining didactic in-service training and on the job coaching, and is a more effective way to learn new knowledge and skills; and ensure they are maintained over time (van Oorsouw, Embregts, Bosman, & Jahoda, 2009). Regular practising of mindfulness skills is particularly important to derive the benefits (Huppert &

Johnson, 2010). Therefore shorter regular sessions may have been more beneficial to help participants to practise the mindfulness exercises, particularly as participant adherence was not objectively measured. Similarly, the adherence to the workshop protocol by the presenter was not measured by independent parties. Therapist experience in mindfulness is considered to be important (Segal, Teasdale, Williams, & Gemar, 2002), and is believed to influence therapeutic outcomes. Hence, relative inexperience of the therapist may have had a bearing on the results.

The study was also limited by the number of potential outcome and process variables which were measured. While the choice of measures was guided by previous research and restricted by the practical constraints of not wishing to place too many demands on the participants, future research in this area could consider additional measures. This could include a measure of participants' values (Noone & Hastings, 2011) and level of mindfulness (Erisman & Roemer, 2011; Grossman, 2011), both of which are seen as key components of acceptance and commitment therapy interventions. Similarly, future studies may wish to measure potentially confounding variables such organisational support (Mutkins et al., 2011), interpersonal relationships with work colleagues (Alexander & Hegarty, 2000), the interpersonal demands of the helping relationship with the client with ID e.g. the actual type of support required by clients (White et al., 2006), the physical environment in which staff work (Felce, 1998) support staff understanding of their client's disability (McGill, Bradshaw, & Hughes, 2007). All of these factors have been linked with staff stress. The behavioural challenges presented by clients may also be useful to measure as an outcome measure (Singh et al., 2006; Singh et al., 2009) and/or confounding variable. However, there is conflicting evidence as to whether there exists a direct link between this and psychological distress (Skirrow & Hatton, 2007). Measuring support staff rates of absenteeism, sick leave and

turnover (Hatton et al., 2001) may also help clarify the potential economic impact of teaching mindfulness skills (Singh et al., 2008), whether alone or in combination with training in other approaches (Singh et al., 2006).

#### *4.3 Implications and conclusions*

Despite some limitations, this study is one of only a few which explores the use of an intervention to address support staff psychological distress in ID services. This study contributes to the evidence-base for the applicability of MBI to carers of individuals with ID. In comparison with previous research there was a larger sample size, with a well-matched control group. Follow-up data was also collected and provided interesting results on longer term effects. The overall results demonstrate support for the effectiveness of an acceptance and mindfulness-based workshop intervention in reducing distress amongst support staff working in ID services. It seems particularly effective for the most distressed. Future research may wish to examine the use of process outcome measures adapted for use with support staff in ID services, to identify the contexts in which, and for whom, acceptance and mindfulness-based workshops are most effective. Systematic research of the mediators of change will enhance understanding and may lead to more effective interventions.

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## **5. Extended Methodology Chapter**

### *5.1 Design*

This study employed a longitudinal mixed between-within subjects design. This design was implemented to evaluate the effectiveness of an acceptance and mindfulness-based workshop in comparison to a waiting list control group, in reducing psychological distress for support staff working with individuals with Intellectual Disability (ID) and challenging behaviour. Potential participants were randomly allocated to either the workshop condition (intervention group) or a waiting list condition (control group) (see section 5.4.3). All consenting participants were asked to complete questionnaire measures at three time points (pre-, post, and follow-up) to evaluate differences in psychological distress and well-being, and potential mediating variables (see section 5.6). The measures were predominantly quantitative with a few qualitative items in a workshop evaluation form.

### *5.2 Ethical Issues and Approval*

Ethical approval was obtained from the University of Edinburgh ethics committee and the relevant NHS Research and Development Department (see appendix 3). NHS ethics confirmed that no further ethical consideration was required. The following potential ethical issues were taken into account.

It was considered possible that support staff may become upset as a result of thinking about the stresses of their work. However, this was not found to be a common occurrence in previous research completed in this area (Noone & Hastings, 2009; 2010). In order to address this potential issue, it was noted in the participant information sheet (appendix 4) that if the participants did become upset during the course of the workshop; or if any information was discussed by participants indicating that they were experiencing clinically high levels of

stress, or other mental health issues, action would be taken by the principle researcher. This would have involved advice regarding an appropriate course of action to seek professional intervention.

The issue of disclosure of personal and client information and the importance of confidentiality was also considered. Confidentiality was explained to participants prior to each session in the workshop, including the conditions under which it would need to be breached. For instance, if during the course of the workshop participants revealed a criminal act; or provided information regarding a client's well-being, or if the safety of a child was compromised.

### *5.3 Power and sample size calculation*

Previous research has suggested that acceptance and mindfulness-based and ACT interventions similar to the intervention protocol implemented in this study have a medium effect size (Cohen's  $d$  of around 0.6) (Cohen, 1988; Hayes *et al.*, 2006). To ensure sufficient power to detect a medium effect size ( $d=.6$ ), alpha level of .05 and power of .80, employing a mixed design (Mixed ANOVA), a sample size of 45 in each group was required (Clark-Carter, 1997). Thus, the study aimed to recruit two groups of 45.

### *5.4 Participants*

#### *5.4.1 Participant recruitment*

Independent care organizations working with individuals with ID and challenging behaviour, based in the local area were approached by telephone and through personal contact and invited to participate in the study. If organisations elected to take part, management were asked to identify and provide a list of names of potential participants meeting the inclusion and exclusion criteria (see 5.4.2). All potential participants were provided with an

information sheet (see appendix 4) randomly assigned (see 5.4.3) and asked to contact their line managers if they would like to participate. It was explained that participants in the waiting list control condition would be offered the opportunity to attend a workshop following the end of data collection phase of the study.

#### *5.4.2 Inclusion and exclusion criteria:*

The participants were required to be (non NHS) support staff directly involved in providing day-to-day care and support to individuals with ID and challenging behaviour. They were required to be above eighteen years of age and able to provide informed consent. In addition, it was specified that they needed to have had experience of this type of work for at least six months. This was to ensure that all participants had direct experience of the potential stressors of providing direct care to individuals with ID and challenging behaviour.

#### *5.4.3 Randomisation Procedure*

The list of names of potential participants from each individual care organisation was randomly assigned to either the workshop (intervention) or the waiting list (control) condition. As this study involved less than two hundred participants, it was not possible to use simple randomisation (i.e. flipping a coin) as research suggests this greatly increases the risk of imbalance happening (Lachin *et al.*, 1988). Therefore, permuated block randomisation was used. Each participant was allocated an identification number and a computer program ([www.jerrydallal.com/random/random\\_block\\_size.htm](http://www.jerrydallal.com/random/random_block_size.htm)) was used to generate quasi-random numbers to allocate participants to either the ACT workshop/intervention or waiting list/control condition.

Seven independent voluntary organisations opted to participate in the study, and 156 potential participants were identified (see Figure 1, page 62). Of these, 78 were randomly allocated to

treatment and 78 to control condition. A total of 120 participants consented to participate in the study, with 66 being allocated to the intervention (workshop) condition and 54 in the control condition.

Line managers within the individual organisations coordinated the release of support staff to participate in the workshops and the distribution, completion and collection of the questionnaire measures (if in control condition) at all time points. Despite the efforts to randomly allocate participants to conditions, seven participants who were allocated to the control condition turned up to attend the intervention condition, and three participants allocated to the intervention condition completed measures in the control condition. Anecdotal reports from line managers as to the reason for this misallocation were difficulties with covering shifts due to sickness, annual leave and the need for emergency cover and a lack of awareness of the random allocation.

#### *5.4.4 Demographic information*

The control and intervention groups were well matched in terms of the demographic information and age and experience data collected (see table 5.1) with similar values and percentages found in both conditions. Non parametric statistical analysis was used to further explore the data as it was not normally distributed. A series of Mann Whitney U tests and Chi squared tests found no significant differences between the conditions (see appendix 6).

**Table 5.1** *Participants' demographics by intervention and control group.*

	Intervention		Control		Total sample	
	Median	Range	Median	Range	Median	Range
Age (years)	43	19-69	44	22-64	43	19-69
Years of experience working in ID	6.5	0.5-25	6.4	0.9-30	6.4	0.5-30
Number of hours worked per week	37	9.5-45	37.5	12-45	37.5	9.5-45
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
Male	19	28.8	12	22.2	31	25.8
Female	47	71.2	42	77.8	89	74.2
Secondary school education only	26	39.4	25	46.3	51	42.5
Higher Education college	25	37.9	21	38.9	46	38.3
University education	15	22.7	8	14.8	23	19.2
Professional qualification in ID area.	30	45.5	24	44.4	54	45
No professional qualification	36	54.5	30	55.6	66	55
Note: N=frequency						

## 5.6 Measures

### 5.6.1 Demographic Information

Demographic data were collected on gender, age, education, hours of working, and experience of working in ID services.

### 5.6.2 Primary Outcome Measure

**Psychological distress:** The *General Health Questionnaire-12 (GHQ-12*: Goldberg, 1992) was used to measure support staff psychological distress. It contains 12 items addressing general well-being. This measure displays good content validity and good construct validity (Goldberg & Bridges, 1987), with internal consistency being reported in a range of studies using Cronbach's alpha ranging from 0.82 to 0.86 (Goldberg & Williams, 2006). Likert scoring was used (0-1-2-3), with higher scores indicating higher levels of psychological



distress. In the present study the Cronbach's alpha score was .872 at pre, .774 at post and .791 at follow up.

### 5.6.3 Secondary Outcome Measures

**Psychological well-being:** The *Warwick-Edinburgh Mental Well-Being Scale (WEMWBS)*: Tennant *et al.*, 2007) was used to measure positive aspects of support staff psychological well-being. It has 14 items rated on a five-point scale with higher scores indicating greater well-being. It has been standardised on a UK population and measures positive mental health, including subjective experience of happiness and life satisfaction, and perspectives on psychological functioning and personal relationships (Lindsay *et al.*, 2011). This scale has shown good content validity with moderately high correlations with other mental health scales (Tennant *et al.*, 2007). The scale displays good levels of internal consistency with a Cronbach's alpha of 0.91 (Tennant *et al.*, 2007). In the present study the Cronbach's alpha score was .908 at pre-, .876 at post, and .887 at follow-up.

**Staff perception of work stress:** The *Staff Stressor Questionnaire (SSQ)*: Hatton *et al.*, 1999) was used to measure staff perceptions of work stressors. It contains 33 items relating to potential work stressors in ID service environments including service user related factors, organisational factors and support related factors. It provides a total score based on the sum of the ratings for all 33 items, with higher scores indicating higher perceived levels of work stressors. It has good internal reliability (Devereux, Hastings, *et al.*, 2009; Hatton, Emerson, *et al.*, 1999) and in the present study the Cronbach's alpha score was .921 at pre-, .922 at post and .918 at follow-up.

#### 5.6.4 Process Measures

**Experiential avoidance/psychological inflexibility:** the *Acceptance and Action Questionnaire-II* (AAQ-II: Bond *et al.*, 2011) was used to measure experiential avoidance or psychological inflexibility. This is the extent to which support staff are able to experience upsetting or difficult thoughts, feelings and emotions without trying to suppress or avoid them. The AAQ-II comprises 7 items with a seven-point response format and was designed as an updated version of the AAQ (Hayes, *et al.*, 2004). The AAQ-II correlates 0.82 with the AAQ and has satisfactory structure, reliability and validity (Hayes *et al.*, 2004). This is a one factor measure with higher scores indicating greater experiential avoidance/psychological inflexibility. In the present study the Cronbach's alpha score was .860 at pre-, .830 at post and .849 at follow-up.

**Thought suppression:** the *White Bear Suppression Inventory* (WBSI: Wegner & Zanakos, 1994) was used to measure aspects of thought suppression. Thought suppression is the process of deliberately trying to stop thinking about certain thoughts. Participants were asked to rate how strongly they agree with 15 statements (e.g. "I wish I could stop thinking about certain things," and "I always try to put problems out of my mind") on a five-point scale (1 = disagree to 5 strongly agree). The WBSI has been found to have acceptable levels of internal consistency (alpha = .87 to .89) (Wegner & Zanakos, 1994). It also demonstrates excellent convergent validity with significant correlations with established mental health measures (Ibid). In the present study the Cronbach's alpha was .927 at pre-, .925 at post and .915 at follow-up.

**Staff emotional reactions:** The *Emotional Reactions to Aggressive Challenging Behaviour Scale* (ERACBS; Mitchell & Hastings, 1998) was used to measure support staff negative emotional reactions to service user behaviour. This scale consists of fifteen negative emotions scored along two dimensions derived from a factor analysis: depression/anger emotions (e.g. sad, angry) and fear/anxiety emotions (e.g. nervous, frightened). Participants were asked to rate each emotion in response to an individual client they supported who displayed challenging behaviour. Scores on the items for the two subscales (depression/anger and fear/anxiety) are summed to provide two total scales course. These scales have been used in several studies involving individuals with ID and have been found to be reliable and have excellent face and construct validity (Hastings *et al.*, 2004; Mitchell & Hastings, 2001; Mossman *et al.*, 2002). In the present study, the feelings of depression/anger scale was found to have acceptable levels of internal consistency, as assessed using Cronbach's alpha with .789 at pre-, .776 at post and .760 at follow-up. The fear anxiety scale had only five items and was found to have acceptable levels of inter-item correlation (see appendix 5).

#### *5.6.5 Workshop evaluation*

The end of workshop evaluation forms were provided to participants in the intervention condition only (see appendix 7). They were asked to report on the most and least useful aspects of the workshop in the open-ended questions and asked about the impact the workshop may have had on their work and life away from work. At the end of the second session participants were asked how many times they had practised the mindfulness exercises in the last month.

## *5.7 Procedure*

### *5.7.1 Acceptance and Mindfulness Workshop*

The intervention consisted of the Acceptance and Mindfulness Workshop derived from a protocol based on the core principles of Acceptance and Commitment therapy (ACT) (Bond & Hayes, 2002; Bond & Bunce, 2000; Hayes *et al.*, 1999) and adapted for use within ID services by Noone and Hastings (2009; 2010). A detailed intervention protocol is available in Noone and Hastings (2009), see also Bond and Hayes (2002), and Bethay, Wilson and Moyer (2009) (see Appendix 8). The major components of the intervention include increasing mindfulness and psychological acceptance of thoughts, feelings and sensations, reducing the literal control of thoughts and language over our behaviour, and defining values and creating goals (Bond & Hayes, 2002). The increase in mindfulness and acceptance is believed to be an essential component and aims to free up cognitive resources, while it is postulated that value driven behaviour may aid increased behaviour activation. The overall aim of the workshop was to try and change the way support staff reacted to stressful situations, such as supporting a client with ID and challenging behaviour. The workshop involved the use of didactic teaching, group discussions, written exercises, and the use of metaphors, short video presentations and practical and interactive exercises, all of which aimed to illustrate the key components on the intervention. Mindfulness exercises were practised in sessions and were given as a homework assignment to be completed between sessions.

The intervention consisted of a full day workshop, followed by a half day session after six weeks. The group sizes varied between 3 and 10 participants. The full day workshop had three major components (see appendix 8). Firstly, participants were encouraged to explore the relationship between their bodily sensations, thoughts, feelings, behaviours and stress.

Current coping strategies were reviewed and participants were introduced to ‘willingness’ or ‘psychological acceptance’ as an alternative. Secondly, the literal control which language may have over our thoughts and behaviours was explored, as was the ability to separate oneself from thoughts (cognitive fusion). Thirdly, participants were encouraged to reflect on and clarify their core values, and at the end of the day they were offered an opportunity to commit to changing their behaviour to be more consistent with their core values (Bethay *et al.*, 2009). The second half-day session focused on obstacles to the pursuit of core values and psychological acceptance and flexibility. It also acted as a booster session with a revision of information provided in previous sessions, allowing for repetition and practise of skills learned. There was a particular focus on mindfulness. Participants were again offered the opportunity to make commitment to their core values.

#### *5.7.2 Waiting-list control*

Participants assigned to the waiting lists control group received no intervention. After the data collection was completed within an organisation, these participants were invited to attend an acceptance and mindfulness workshop.

#### *5.7.3 Data collection:*

Participants in the intervention group were asked to complete time 1 (pre-) measures prior to the start of the full day workshop (see Figure 1, page 62). They were asked to complete time 2 (post questionnaires) following the completion of the second half day/refresher workshop which was scheduled six weeks after the completion of the first workshop. Line managers within the individual organisations were asked to distribute and collect measures from participants in the control condition at these time points (pre-and post) when participants in the intervention group were completing measures. After a further six weeks, follow-up

questionnaires were distributed and collected to all participants by line managers at time point 3 (follow-up).

#### *5.7.4 Protocol Adherence*

All workshops covered the same PowerPoint presentation. The principal researcher ticked off the discussion points, practical exercises and worksheets as they were completed, using a paper copy of the PowerPoint slides with attached notes. This was done in order to ensure that all the key components of the acceptance and mindfulness intervention were covered in a consistent manner in each individual workshop.

#### *5.8 Therapist Experience*

All the workshops were completed by the principal researcher, a trainee clinical psychologist currently training at the University of Edinburgh. The principal researcher's experience of acceptance and mindfulness-based interventions included attending training and workshops on acceptance and commitment therapy interventions and mindfulness interventions provided as part of the doctorate in clinical psychology. Additional training included attendance at a two day training workshop focusing on mindfulness and values work in acceptance and commitment therapy, and a mindfulness event hosted by NHS Northumbria. An experienced ACT trainer and practitioner was consulted throughout the development and implementation of the workshop protocol. During the process of the principal researcher's becoming familiar with the treatment protocol, researchers of a previously published study (Noone & Hastings, 2009; 2010) were contacted to discuss their experience of implementing the workshop in ID services.

## 5.9 Statistical analysis

### 5.9.1 Preliminary Analysis

Statistical analysis was carried out in SPSS (version 19). Preliminary data screening operations were performed as recommended by Fidell and Tabachnick (2006, Chapter 4). This involved the screening of data using descriptive statistics for accuracy of data input (identifying and correcting any out of range values), diagnosing missing values patterns, and fit with the assumptions of parametric statistical analysis.

#### 5.9.1.1 Missing items in data

Descriptive statistical analysis found there were nine cases with one missing item in different scales. As this is an extremely small proportion of missing data (below 0.5%), and as analysis of the missing items found no pattern of missing values, the missing values could be considered as missing completely at random (Fidell & Tabachnick, 2006). The missing values were replaced using a maximum likelihood estimation technique based on the Expectation Maximisation (EM) algorithm. Maximum likelihood estimation techniques are considered superior to single imputation techniques such as replacement with mean value; and are considered a reliable technique for managing missing completely at random items within scales data (Schlomer *et al.*, 2010).

#### 5.9.1.2 Attrition and Missing Case analysis

Attrition occurred when participants did not complete post (time 2) or follow-up (time 3) measures. There were similar levels of attrition from both the intervention and control group (see table 5.2). In the intervention group there was a 19.7% (n=13) drop out at time 2, and a 28.8% (n=19) dropout at time 3. This compares to a 16.7% (n=9) at post/time 2, and a 25.9%

(n=14) dropout at time 3 in the control condition. In total at time 3, when considering all participants there had been a 27.5% attrition rate (33 out of 120).

**Table 5.2** *Frequency and percent of complete and missing cases at pre-, post, and follow-up.*

Intervention/Control condition		Complete	Missing/attrition	
		(N=)	(N=)	% missing
Intervention	Time 1/pre-	66	n/a	n/a
	Time 2/post	53	13	19.7
	Time 3/follow-up	47	19	28.8
Control	Time 1/pre-	54	n/a	n/a
	Time 2/post	45	9	16.7
	Time 3/follow-up	40	14	25.9
Totals	Time 1/pre-	120	n/a	n/a
	Time 2/post	98	22	18.3%
	Time 3/follow-up	87	33	27.5%

n/a=not applicable

Analysis was undertaken to explore patterns in the missing cases. Little's MCAR Chi square test was undertaken to examine if the data were missing completely at random (MCAR). This analysis found the data to be MCAR considering all cases and outcome measures MCAR ( $p>.05$ )( $X^2=30.686$ ,  $df=27$ ,  $p=.284$ ).

#### 5.9.1.3 Management of Missing Cases

There are currently no published guidelines explicitly stating the best way to manage missing data (Mayer *et al.*, 2012). The current guidance tends to focus on prevention of missing data, rather than how to handle them when they exist.

Research suggests that Complete Case Analysis (CCA) may in some circumstances understate or overstate treatment effect (Demissie *et al.*, 2003). Therefore it was important to consider how best to manage the missing cases so that it was possible to perform an intention-to-treat analysis (ITT).



Replacement with mean value is possibly the simplest method of dealing with missing data in longitudinal studies (Schlomer *et al.*, 2010). It involves the imputation of the groups' mean value into the missing cases. This preserves the estimate of the mean, but results in an underestimate of the standard deviation and a confidence interval that is too narrow. This increases the probability of a type I error. Therefore this method was discounted in the current study.

Last observation carried forward (LOCF) missing value analysis involves the imputation of the participants last recorded score in place of the missing value. It is commonly used in randomised controlled trials (Shao & Zhong, 2003). The rationale behind this approach is that it is conservative; that is, it operates against the hypothesis that people will improve over time, and so it is postulated we are possibly underestimating the degree of improvement. However, it ignores the fact that the common course of many disorders, such as psychological distress tends towards improvement over time, even in the absence of treatment (Streiner & Geddes, 2001). Research suggests that LOCF may in fact bias in favour or against the hypothesis, depending on the nature of the outcome measures and the group membership of the participants of missing values (Mallinckrodt *et al.*, 2003).

Expectation maximisation (EM) is a method of maximum likelihood estimation (Little & Rubin, 1989). In maximum likelihood approaches observed data are used to estimate parameters, which are then used to estimate the missing scores. These approaches have demonstrated superiority to deletion, single imputation techniques and regression imputation methods (Roth, 1994) for multivariate normal distributions. The EM method provides unbiased and efficient parameters (Graham *et al.*, 1996; Schafer & Graham, 2002). A disadvantage of this technique is that standard errors and confidence intervals are not provided (Mayer *et al.*, 2012).

Following consideration of the possible missing data management techniques, Expectation Maximisation was undertaken using all observed data, allowing for the most accurate estimation of missing data.

#### *5.9.1.4 Assumptions for Parametric Analysis*

The data were checked for normality of distribution, one of the assumptions needed for parametric statistical analysis (Fidell & Tabachnick, 2006). Appendix 9 contains details and results of the tests of normality completed. The Kolomogorov-Smirnov (KS), Shapiro-Wilk (SW), Skewness, Kurtosis and z scores were examined. The statistical tests of normality (KS and SW) scores were satisfactory at ( $p < .001$  level) and the z scores of skewness and kurtosis were satisfactory and are reported in appendix 9. Research suggests that in a sample of over 100 cases, the impact of departure from zero in skewness and Kurtosis diminishes (Fidell & Tabachnick, 2006). For example, underestimates of variance associated with positive kurtosis (Waternaux, 1976). In samples above 100 the visual appearance of distribution is often considered more important than formal inference tests (Tabachnick *et al.*, 2001). Thus, histograms and normal QQ plots were produced and examined for normality of distribution and outliers (see appendix 10). Transformations of the data were not deemed necessary. The data were checked for outliers. No outliers were removed, as they were deemed representative of the sample population. Multivariate statistics were reported for the main statistical analysis (i.e. Wilks' Lambda) as they do not require the assumption of sphericity (Pallant, 2007).

#### *5.9.2 Main Statistical Analysis*

To test for covariance between the process variables and main outcome measures, multiple linear regression analysis was undertaken. This was important to identify variables that would contribute to the overall variance for the dependent variables (*GHQ* and *WEMWBS*) and to

allow these potentially confounding variables to be controlled for when conducting Mixed ANOVAs. Preliminary analysis was undertaken to ensure suitability for regression analysis and that multicollinearity assumptions were not violated (Field, 2011, p.223).

Analysis aimed to compare the differences in outcomes between the intervention group and the waiting list control group across the three time points (pre-, post and follow-up). A Mixed ANOVA was used, with each dependent variable analysed independently. For significant effects, post hoc Bonferroni repeated measures comparisons across time were completed. Effect sizes (ES) were reported using partial eta squared ( $\eta^2$ ). Guidelines proposed by Cohen (1988) suggest that a partial eta squared value .01= small effect, .06= moderate effect, .14= large effect.

## 6. Extended Results Chapter

### 6.1 Main Results

**Hypothesis 1a-** The acceptance and mindfulness-based workshop will significantly reduce psychological distress in support staff (post intervention and follow up) working with individuals with ID in comparison with the control group.

#### **Psychological Distress: *General Health Questionnaire***

##### *Testing for covariance*

Exploratory analysis was undertaken to determine whether it was necessary to control for variables in subsequent analyses. Three regression analyses were conducted to examine whether any of the following made a significant contribution to the variance in *General Health Questionnaire (GHQ)* scores over the three time points: *Acceptance and Action Questionnaire (AAQ-II)*, *White Bear Suppression Inventory (WBSI)*, *Emotional Reactions to Challenging Behaviour Scale Subscales (Depression/Anger and Anxiety/Fear) (ERCBS Dep & Ang) (EMRCBS Anx & Fear)*, *Staff Stressor Questionnaire (SSQ)*.

Preliminary analysis was undertaken to ensure suitability for regression analysis. The correlations between each variable were examined to ensure that they did not exceed .9, and inspection of Tolerance and Variance Inflation Factors (VIF) concluded that multicollinearity assumptions were not violated (Field, 2011, p.223). The results of the regression analyses are provided below (see Tables 6.1, 6.2, 6.3).

**Table 6.1. Regression Analysis Time 1 GHQ**

T1 GHQ Regression analysis						
Variable	B (95% confidence interval)	Standard $\beta$	P value	Adjusted R Squared	F (5, 114)	P value
T1 AAQ	.248 (0.1-0.399)	.349	.001	.235	6.987	<.001
T1 WBSI	-.010 (-.099-.079)	-.023	.821			
T1 ERCBS	.329 (.049-.609)	.274	.022			
Depression and Anger						
T1 ERCBS Anxiety and Fear	-.048 (-.538-.443)	-.022	.848			
T1 Staff Stressor Questionnaire	-.008 (-.064-.047)	-.030	.763			

**Table 6.2. Regression Analysis Time 2 GHQ**

T2 GHQ Regression analysis						
Variable	B (95% confidence interval)	Standard $\beta$	P value	Adjusted R Squared	F (5, 114)	P value
T2 AAQ	.198 (.086-.310)	.358	.001	.214	7.478	<.001
T2 WBSI	.005 (-.064-.073)	.014	.892			
T2 ERCBS	.258 (.057-.458)	.278	.012			
Depression and Anger						
T2 ERCBS Anxiety and Fear	-.239 (-.592-.113)	-.138	.181			
T2 Staff Stressor Questionnaire	.009 (-.030-.049)	.045	.639			

**Table 6.3. Regression Analysis Time 3 GHQ**

T3 GHQ Regression analysis						
Variable	B (95% confidence interval)	Standard $\beta$	P value	Adjusted R Squared	F (5, 114)	P value
T3 AAQ	.153 (.043-.264)	.280	.007	.138	4.819	<.001
T3 WBSI	.033 (-.035-.101)	.099	.335			
T3 ERCBS	.163 (-.045-.370)	.179	.123			
Depression and Anger						
T3 ERCBS Anxiety and Fear	-.261 (-.612-.089)	-.157	.143			
T3 Staff Stressor Questionnaire	.006 (-.033-.046)	.031	.753			

The regression analysis revealed that the following significantly contributed to overall variance accounted for in *GHQ* scores: *ERCBS* depression and anger subscale and *AAQ-II* scale scores at times 1 and 2; and the *AAQ-II* scores at time 3.

In order to determine whether these scores impacted differentially on the intervention and control groups across the three time points, mixed ANOVA's were undertaken for the *AAQ-II* and *ERCBS* depression and Anger subscales to explore for significant interaction effects. There was no significant interaction effect for time \* condition [Wilks' Lambda=.974,  $F(2,117)=1.541$ ,  $p=.219$ , multivariate partial eta squared,  $\eta^2=.026$ ] for the *ERCBS* depression and anger subscale, with both conditions showing a similar pattern of results. Similarly, for the *AAQ-II* no significant interaction effect for time \* condition (see hypothesis 2) was found.

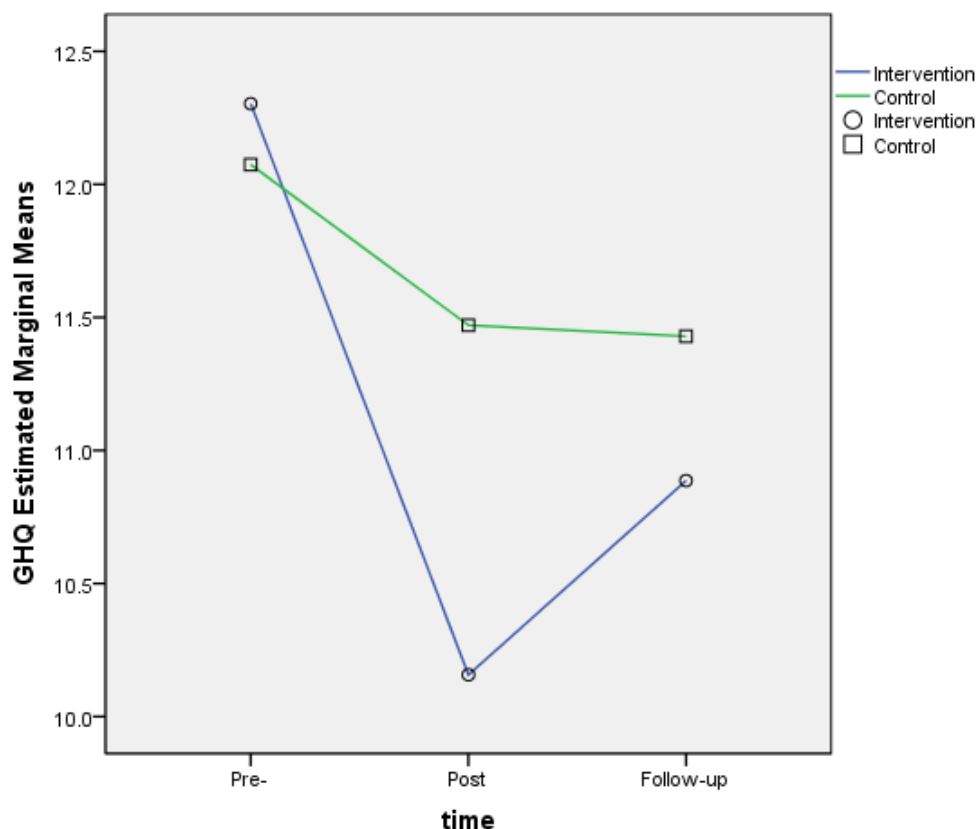
As no significant interaction effects were found for time \* condition in the *AAQ-II* or the *ERCBS* depression and anger subscale they were not included as covariates in subsequent analyses.

#### *Main analysis: Hypothesis 1a*

A mixed ANOVA was undertaken to explore the differences in psychological distress in participants as measured by the *General Health Questionnaire (GHQ)* and found that there was a significant interaction effect for time \* condition [Wilks' Lambda=.879,  $F(2,117)=8.061$ ,  $p=.001$ , multivariate partial eta squared,  $\eta^2=.121$ ], which is considered a medium to large effect size (Cohen, 1988). This suggests there was a significant difference in the pattern of scores between participants who had received the intervention and those in the control group over the three time points (see Table 6.7 and Figure 6.1).

Post hoc Bonferroni procedure for repeated measures comparisons across time found that in the intervention condition there was a significant lowering of *GHQ* score between pre-and post- intervention ( $p=.001$ ). The analysis also suggested that there was a significant increase in *GHQ* scores between post and follow-up ( $p=.0001$ ). However there was still a significant reduction when considering pre- and follow-up scores ( $p=.048$ ) in the intervention group. In the control group there was also a reduction of *GHQ* scores between pre-and post, however, this only just reached significance ( $p=.048$ ). There was no significant change in control group scores between post and follow up. However, when considering the longer time period between pre and follow up there was a significant reduction ( $p=.017$ ).

**Figure 6.1.** *General health questionnaire scores across time for the intervention and control group*



**Hypothesis 1b-** The acceptance and mindfulness-based workshop will significantly enhance well-being in support staff (post intervention and follow up) working with individuals with ID in comparison with the control group.

**Well-Being: Warwick Edinburgh Mental Well-being Scale**

*Testing for covariance*

As with the *GHQ* scores, three regression analyses were conducted to examine whether any of the following made a significant contribution to the variance in *WEMWBS* scores over the three time points: *Acceptance and Action Questionnaire (AAQ-II)*, *White Bear Suppression Inventory (WBSI)*, *Emotional Reactions to Challenging Behaviour Scale Subscales (Depression/Anger and Anxiety/Fear) (ERCBS Dep & Ang) (EMRCBS Anx & Fear)*, *Staff Stressor Questionnaire (SSQ)*.

The results of the regression analyses are provided below (see Tables 6.4, 6.5, 6.6).

**Table 6.4.** Regression Analysis Time 1 WEMWBS

T1 WEMWBS Regression analysis						
Variable	B (95% confidence interval)	Standard $\beta$	P value	Adjusted R Squared	F (5, 114)	P value
T1 AAQ	-.436 (-.645-.226)	-.415	<.001	.268	9.694	<.001
T1 WBSI	-.004 (-.130-.122)	-.006	.955			
T1 ERCBS Depression and Anger	-.161 (-.556-.235)	-.091	.422			
T1 ERCBS Anxiety and Fear	-.021 (-.714-.671)	-.007	.952			
T1 Staff Stressor Questionnaire	-.061 (-.139-.017)	-.146	.125			



**Table 6.5. Regression Analysis Time 2 WEMWBS**

T2 WEMWBS Regression analysis						
Variable	B (95% confidence interval)	Standard $\beta$	P value	Adjusted R Squared	F (5, 114)	P value
T2 AAQ	-.421 (-.599--.243)	-.467	<.001	.246	8.744	<.001
T2 WBSI	.021 (-.088-.130)	0.39	.701			
T2 ERCBS	-.090 (-.410-.230)	-.060	.578			
Depression and Anger						
T2 ERCBS Anxiety and Fear	-.060 (-.622-.502)	-.021	.834			
T2 Staff Stressor Questionnaire	-.042 (-.105-.021)	-.124	.192			

**Table 6.6. Regression Analysis Time 3 WEMWBS**

T3 WEMWBS Regression analysis						
Variable	B (95% confidence interval)	Standard $\beta$	P value	Adjusted R Squared	F (5, 114)	P value
T3 AAQ	-.370 (-.554--.186)	-.396	<.001	.171	5.916	<.001
T3 WBSI	.029 (-.084-.143)	.052	.608			
T3 ERCBS	.076 (-.271-.422)	.049	.666			
Depression and Anger						
T3 ERCBS Anxiety and Fear	-.263 (-.849-.323)	-.093	.376			
T3 Staff Stressor Questionnaire	-.063 (-.129-.003)	-.183	.62			

The regression analyses revealed that *AAQ-II* scores significantly contributed to overall variance accounted for in *WEMWBS* scores at times 1, 2 and 3.

As the previously conducted mixed ANOVA had indicated that there was no significant interaction for time \* condition in the *AAQ-II*, this was not included as a covariate in the subsequent analysis of the *WEMWBS* scores.

*Main analysis: Hypothesis 1b*

There was no significant interaction effect on the *WEMWBS* scores for time \* condition

[Wilks' Lambda=.966,  $F(2,117)=2.057$ ,  $p=.132$ , multivariate partial eta squared,  $\eta^2=.034$ ].

There was very little change in *WEMWBS* mean scores over time in either group (see Table 6.7).

**Table 6.7.** Outcome measure means and standard deviations across the three time points for all participants.

	<b>GHQ</b>	<b>SSQ</b>	<b>WEMWBS</b>	<b>AAQ-II</b>	<b>WBSI</b>	<b>ERCBS Anx &amp; Fear</b>	<b>ERCBS Dep &amp; Anger</b>
<b>Intervention Group (n=66)</b>							
<b>Time 1 (pre)</b>	M=12.30 SD=(5.95)	M=66.5 SD=(18.62)	M=51.06 SD=(8.14)	M=19.10 SD=(7.53)	M=44.88 SD=(12.02)	M=4.27 SD=(2.67)	M=7.52 SD=(4.06)
<b>Time 2 (post)</b>	M=10.16 SD=(3.37)	M=66.13 SD=(17.71)	M=50.91 SD=(5.98)	M=18.73 SD=(6.54)	M=44.80 SD=(11.16)	M=3.77 SD=(2.25)	M=6.64 SD=(3.82)
<b>Time 3 (Follow-up)</b>	M=10.89 SD=(3.40)	M=67.34 SD=(17.88)	M=52.01 SD=(5.20)	M=19.14 SD=(6.59)	M=43.21 SD=(10.95)	M=3.72 SD=(2.26)	M=6.61 SD=(3.83)
<b>Control Group (n=54)</b>							
<b>Time 1 (pre)</b>	M=12.07 SD=(4.48)	M=66.37 SD=(19.32)	M=50.76 SD=(7.53)	M=18.89 SD=(7.45)	M=42.61 SD=(12.19)	M=3.81 SD=(2.32)	M=7.30 SD=(4.89)
<b>Time 2 (post)</b>	M=11.47 SD=(4.10)	M=66.34 SD=(18.88)	M=49.88 SD=(6.29)	M=18.85 SD=(7.14)	M=43.09 SD=(11.29)	M=3.55 SD=(2.08)	M=6.86 SD=(4.36)
<b>Time 3 (Follow-up)</b>	M=11.13 SD=(3.87)	M=68.21 SD=(18.35)	M=50.28 SD=(7.11)	M=19.18 SD=(6.67)	M=43.39 SD=(10.75)	M=3.62 SD=(2.09)	M=6.46 SD=(4.20)

Notes: M=mean SD= Standard Deviation. GHQ=General Health Questionnaire, SSQ=Staff Stressor Questionnaire, WEMWBS=Warwick & Edinburgh Mental Well Being Scale, AAQ-II=Acceptance and Action Questionnaire, WBSI=White Bear Suppression Inventory, ERCBS=Emotional Reactions to Challenging Behaviour Scale, Subscales= Anxiety and Fear, Depression and Anger

## 6.2 Secondary Research Questions

**Hypothesis 2-Support staff who received the workshop will have significantly greater reductions in thought suppression and experiential avoidance/psychological inflexibility in comparison to support staff in the control condition (at post intervention and follow up).**

### **Thought Suppression: *White Bear Suppression Inventory***

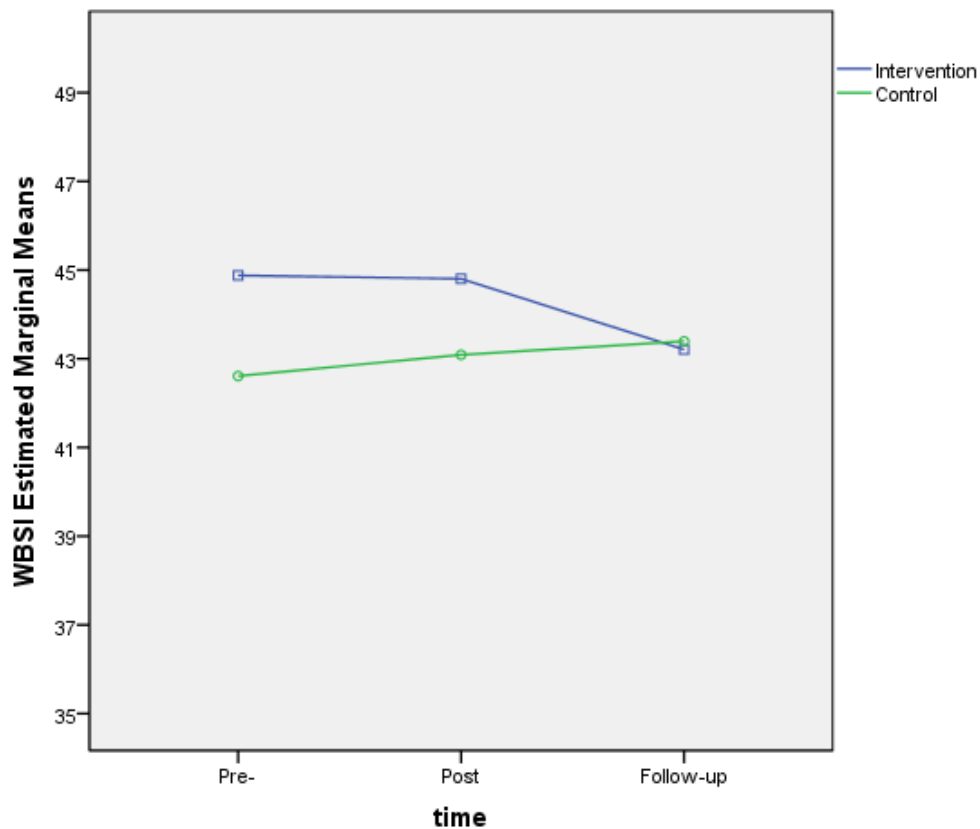
A Mixed ANOVA analysis found a significant interaction effect for time \* condition [Wilks' Lambda=.920,  $F(2,117)=5.110$ ,  $p=.007$ , multivariate partial eta squared,  $\eta^2=.080$ ]. This is a medium effect size. Post Hoc analysis found a significant drop in thought suppression (*WBSI*) scores between post and follow-up in the intervention group ( $p=.005$ ). No other significant results were found (see Figure 6.2).

### **Experiential Avoidance/Psychological inflexibility: *Acceptance and Action***

#### ***Questionnaire-II***

As noted in hypothesis 1 there was no significant interaction effect for time \* condition [Wilks' Lambda=.998,  $F(2,117)=.106$ ,  $p=.900$ , multivariate partial eta squared,  $\eta^2=.002$ ] for the *AAQ-II* (see Table 6.7).

**Figure 6.2.** Thought suppression (*WBSI scores*) at pre, post and follow-up for the intervention and control group



**Hypothesis 3-** There will be greater improvements in levels of: a) psychological distress; b) well-being; c) thought suppression and d) experiential avoidance/psychological inflexibility, as indicated by a larger effect size, amongst those with pre-intervention scores that indicate clinically significant distress, as compared with the all participants' results.

#### **Analysis for participants with pre-intervention *GHQ* scores >11**

The full data set included support staff with non-clinically significant levels of psychological distress. Additional analyses were undertaken to examine the effect of the intervention for individuals who exhibited higher levels of psychological distress. Analyses were re-run for

participants with a pre- (time point 1) *GHQ*-12 score greater than 11, which previous research has shown to predict the presence of a clinically significant level of psychological distress, with 78.9% sensitivity and 77.4 % specificity (Goldberg *et al.*, 1997). Previous research has found that similar workshop interventions have had greater effect on individuals with higher levels of psychological distress at pre-intervention (Bethay, 2010; Flaxmann & Bond, 2010c; Noone & Hastings, 2010). Thirty three participants in the intervention group and 32 in the control group scored above this *GHQ*>11 cut off point. Although, the original power analysis for the main study suggests this may be underpowered, the significant results and large effect sizes indicate the absence of a type II error. Means and standard deviations on the outcome measures for these participants are displayed in Table 6.8.

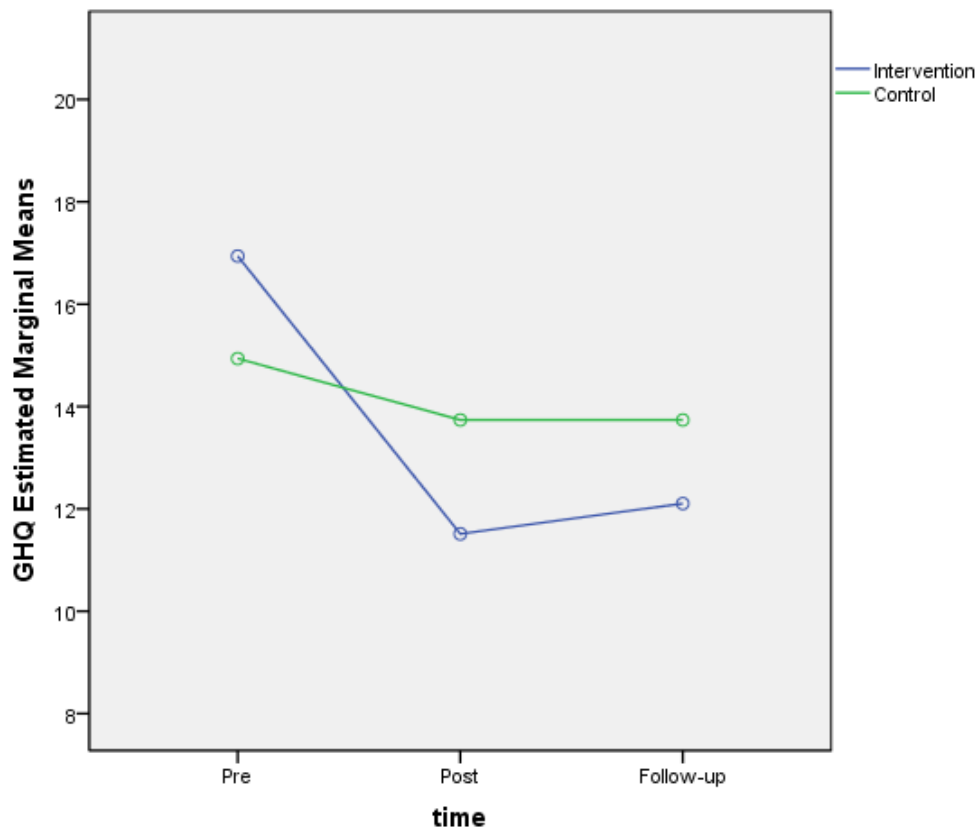
**Hypothesis 3a) *there will be greater improvements, in levels of psychological distress, as indicated by a larger effect size, amongst those with pre-intervention scores that indicate clinically significant distress, as compared with the all participants' results.***

### **Psychological Distress: General Health Questionnaire (*GHQ*)**

For *GHQ* scores the mixed ANOVA analysis found a significant interaction effect for time \* condition [Wilks' Lambda=.662,  $F(2,62)=15.805$ ,  $p<.001$ , multivariate partial eta squared,  $\eta^2=.338$ ], a very large effect size, compared to the medium to large effect size found when analysing all participants' data. Post Hoc analysis found a similar pattern to the analysis of all participant data (see Figure 6.3). In the intervention group there were significant reductions in psychological distress between time 1 and 2 ( $p<.001$ ), and also 1 and 3 ( $p<.001$ ), with a significant increase in distress between 2 and 3 ( $p=.040$ ). In the control

group there were significant reductions in time 1 to 2 ( $p=.002$ ), and 1 to 3 ( $p<.001$ ), but no significant change between time 2 and time 3 (post and follow-up).

**Figure 6.3.** *Participants with  $GHQ>11$  at time 1 across the three time points for intervention and control group conditions.*



**Table 6.8.** Outcome measure means and standard deviations across the three time points for the participants with pre-intervention GHQ scores >11 at time 1.

	GHQ	SSQ	WEMWBS	AAQ-II	WBSI	ERCBS Anx & Fear	ERCBS Dep & Anger
<b>Intervention Group (n=33)</b>							
<b>Time 1 (pre)</b>	M=16.94 SD=(4.60)	M=71.64 SD=(19.86)	M=46.82 SD=(7.57)	M=22.32 SD=(6.95)	M=46.48 SD=(13.30)	M=5.27 SD=(2.84)	M=8.94 SD=(4.07)
<b>Time 2 (post)</b>	M=11.51 SD=(3.70)	M=68.74 SD=(18.34)	M=48.54 SD=(6.04)	M=19.82 SD=(6.63)	M=45.44 SD=(12.70)	M=4.33 SD=(2.59)	M=7.26 SD=(3.99)
<b>Time 3 (Follow-up)</b>	M=12.10 SD=(3.66)	M=69.32 SD=(19.08)	M=50.40 SD=(5.19)	M=20.49 SD=(6.91)	M=42.51 SD=(12.71)	M=4.25 SD=(2.64)	M=7.16 SD=(4.08)
<b>Control Group (n=32)</b>							
<b>Time 1 (pre)</b>	M=14.94 SD=(3.12)	M=68.00 SD=(17.66)	M=49.25 SD=(6.84)	M=21.41 SD=(6.70)	M=45.16 SD=(10.37)	M=3.91 SD=(2.48)	M=8.29 SD=(5.66)
<b>Time 2 (post)</b>	M=13.74 SD=(3.47)	M=68.01 SD=(17.66)	M=48.46 SD=(5.95)	M=21.47 SD=(6.44)	M=45.50 SD=(9.92)	M=3.61 SD=(2.18)	M=7.63 SD=(4.91)
<b>Time 3 (Follow-up)</b>	M=13.74 SD=(2.73)	M=69.68 SD=(17.82)	M=49.35 SD=(7.25)	M=21.50 SD=(6.09)	M=45.68 SD=(9.01)	M=3.56 SD=(2.08)	M=7.07 SD=(4.59)
Notes: M=mean SD= Standard Deviation. GHQ=General Health Questionnaire, SSQ=Staff Stressor Questionnaire, WEMWBS=Warwick & Edinburgh Mental Well Being Scale, AAQ-II=Acceptance and Action Questionnaire, WBSI=White Bear Suppression Inventory, ERCBS=Emotional Reactions to Challenging Behaviour Scale, Subscales= Anxiety and Fear, Depression and Anger							



**Hypothesis 3b) *there will be greater improvements, in levels of well-being, as indicated by a larger effect size, amongst those with pre-intervention scores that indicate clinically significant distress, as compared with the all participants' results.***

**Well-being: Warwick Edinburgh Mental Well-being Scale (WEMWBS)**

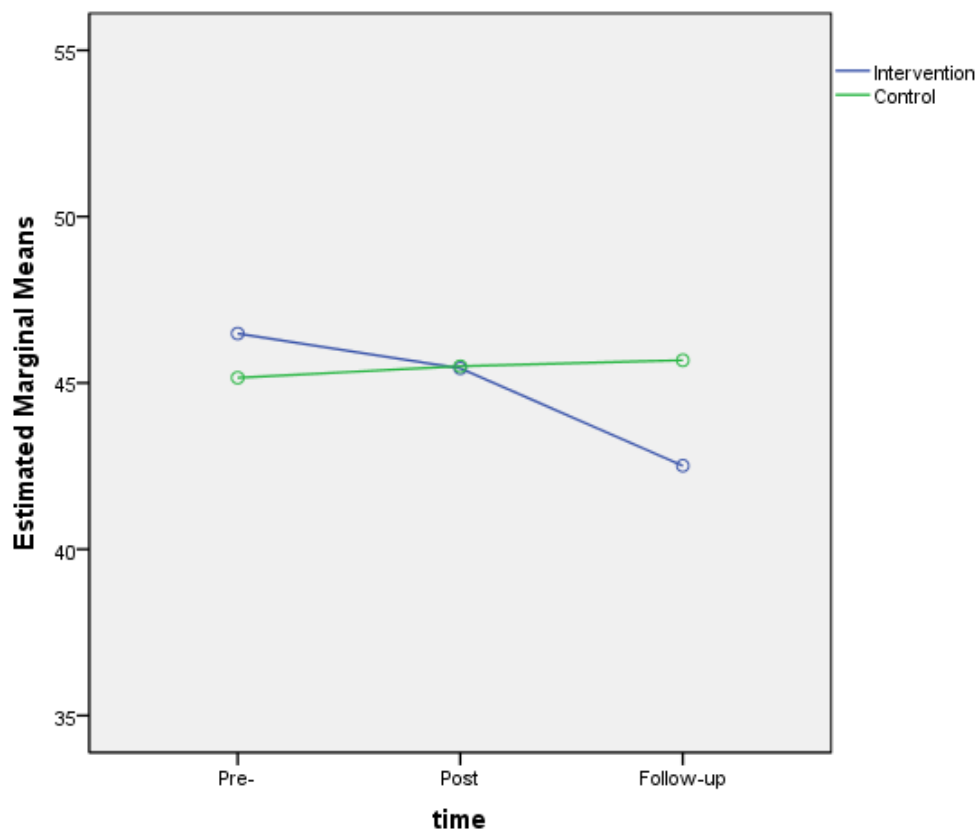
The analysis found no significant interaction effect for time by condition on WEMWBS scores amongst those with pre-intervention GHQ scores >11 [Wilks' Lambda=.918,  $F(2,62)=2.747$ ,  $p=.072$ , multivariate partial eta squared,  $\eta^2=.081$ ], though there was a medium effect size with scores increasing over time in the intervention group and no notable change in the control group (Table 6.8).

**Hypothesis 3c) *there will be greater improvements, in levels of thought suppression, as indicated by a larger effect size, amongst those with pre-intervention scores that indicate clinically significant distress, as compared with the all participants' results.***

**Thought Suppression: White Bear Suppression Inventory-WBSI**

There was a significant interaction effect for time by condition on thought suppression amongst those with pre-intervention GHQ scores >11 [Wilks' Lambda=.823,  $F(2,62)=6.66$ ,  $p=.002$ , multivariate partial eta squared,  $\eta^2=.177$ ]. This represented a large effect size, compared to the medium effect size in the analysis of all participant data. Post hoc analysis found a significant drop in WBSI scores in the intervention group between time two and three ( $p=.002$ ), and also between time one and three ( $p=.028$ ) (see Figure 6.5). No other significant changes were found.

**Figure 6.5.** *Thought suppression (WBSI scores) across the three time points for the intervention and control conditions for participants with GHQ scores >11 at time one.*



**Hypothesis 3d)** *there will be greater improvements, in levels of experiential avoidance/psychological inflexibility, as indicated by a larger effect size, amongst those with pre-intervention scores that indicate clinically significant distress, as compared with the all participants' results.*

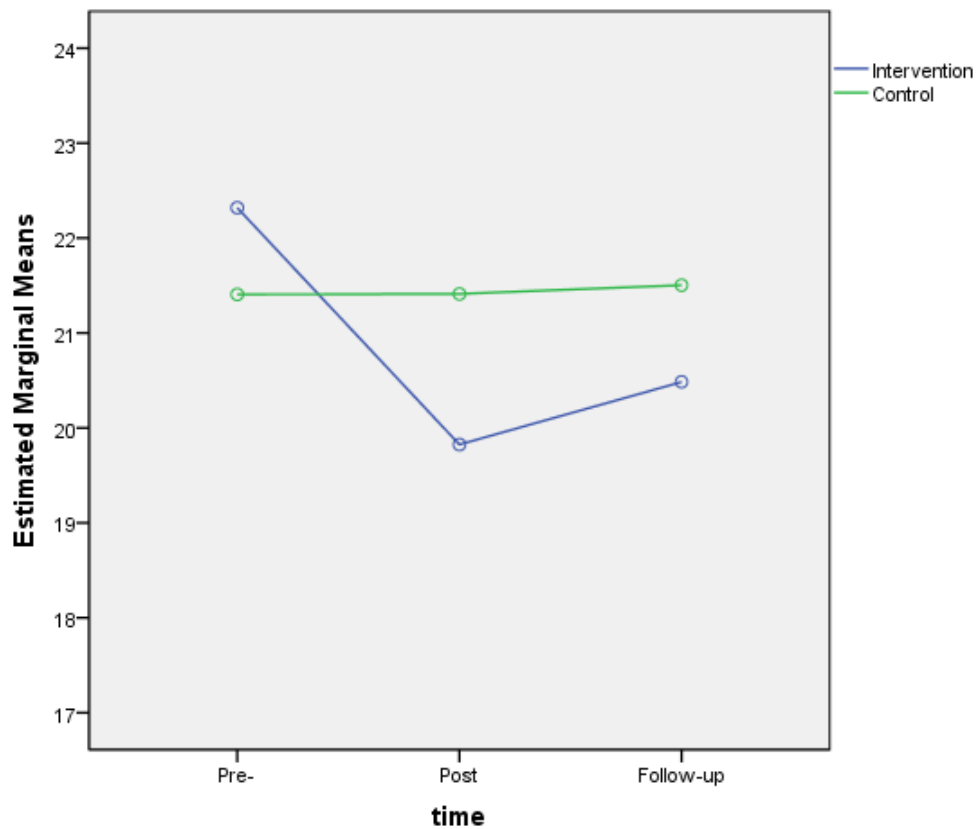
### **Experiential Avoidance/Psychological Inflexibility: The Acceptance and Action**

#### **Questionnaire-II AAQ-II**

There was no significant interaction effect for condition by time on experiential avoidance/psychological inflexibility, amongst those with pre-intervention GHQ scores >11

[Wilks' Lambda=.913,  $F(2,62)=2.948$ ,  $p=.06$ , multivariate partial eta squared,  $\eta^2=.087$ ] a medium effect size. There was a reduction of AAQ score in the intervention group, most notable between time 1 and time 2, and little change in the control group (see Figure 3.6 and Table 6.8).

**Figure 6.6.** *Experiential avoidance/Psychological inflexibility (AAQ scores) across the three time points for intervention and control conditions for participants with GHQ scores >11 at time one.*



### *6.3. End of Workshop Feedback*

The results of the end of workshop feedback forms completed by participants in the intervention group at the end of the full day workshop (n=66) (workshop 1), and at the end of the half-day follow-up session (workshop 2) (n=53), are presented below (see Table 6.9).

**Table 6.9. End of Workshop participant ratings**

Questions	Rating frequency N (%)				
	Poor 1	2	3	4	Excellent 5
Usefulness of W1 (End of full day)	1(1.5)	0(0)	10(15)	29(44)	26(39)
Usefulness of W2 (follow-up/refresher)	0(0)	0(0)	17(32)	24(45)	12(23)
	Did not understand	2	3	4	Fully understood
Understanding of ideas in W1	0(0)	1(2)	2(3)	27(23)	36(55)
Understanding of ideas in W2	0(0)	1(1.9)	6(11)	20(38)	26(49)
	Not at all 1	2	3	4	5 To a large extent
Extent W1 will help to develop more helpful ways to manage stress of working with clients	0(0)	1(1.5)	17 (26)	31(47)	17(26)
Extent W2 will help to develop more helpful ways to manage stress of working with clients	1(1.9)	3(6)	15(28)	23(43)	11(21)
Extent W1 will having any effect on work supporting clients	2(3)	0(0)	19(29)	32(49)	13(20)
Extent W2 will having any effect on work supporting clients	2(4)	5(9)	15(28)	21(40)	10(19)
Effect on life outside of work-W1	1(1.5)	3(4.5)	19(29)	24(36)	19(29)
Effect on life outside of work-W2	3(6)	5(9)	12(23)	20(38)	13(25)
W1 did not understand any ideas	Yes, n=3 (4.5)		No, n=63 (95.5)		
W2 did not understand any ideas	Yes, n=2 (3.8)		No, n=51 (96.2)		

**Additional Comments by Participants**

<i>Most useful aspect</i>	<i>Least useful aspects</i>	<i>Impact on client care</i>	<i>Impact outside work</i>
"The values clarification exercises and the use of metaphors and analogies to explain material."	At times the group discussions went:  "off topic  [on] "tangents that were not relevant	"It will hopefully help me to focus more fully on client care and focus less on stress and worry."  "I will be more aware of my clients needs."	"It will help to prevent things piling up on me, and make me more aware of stress triggers and how to combat them."
"Mindfulness exercises"  "The breathing techniques and focusing on things in the present will help"		"The skills we learnt will help me to stay calm during challenging behaviour situations and minimise the after-effects."	"I can rethink the ways and manage stress."

Notes: W1=Workshop 1, End of full day workshop; W2=Workshop 2, End of half day follow-up workshop

## **7. Extended Discussion Chapter**

### *7.1 Summary of Main Results*

The main aim of this study was to examine the effect of an acceptance and mindfulness-based stress management workshop on levels of psychological distress and well-being of support staff working with individuals with intellectual disability and challenging behaviour. The results highlighted the positive impact of the workshop on support staffs' psychological distress, with a significant interaction effect of time by condition. Psychological distress in all support staff reduced significantly from pre-to follow-up, despite their perceived level of work stressors increasing. However, no significant changes were found on measures of well-being. In addition, this study sought to provide an exploration of the underlying process variables that may account for any changes in psychological distress that resulted from the acceptance and mindfulness workshop. Analysis of the process outcomes found a reduction in thought suppression in the intervention group post to follow-up, with no change found in the control group. Additional analysis found that participants with clinically high levels of psychological distress at pre-, demonstrated greater effect sizes for the interaction between condition and time, suggesting a greater impact of the acceptance and mindfulness-based workshop on the most psychologically distressed support staff.

The discussion will outline the results of the study's hypotheses before discussing each in turn, and considering possible reasons for significant and non-significant results. The implications of the findings will be discussed in the context of the limitations and strengths of the study design. Areas for future research are suggested, and conclusions of this present study are presented.

## 7.2 Discussion of study hypotheses

**7.2.1 Hypothesis 1a-** *The acceptance and mindfulness-based workshop will significantly reduce psychological distress in support staff (post intervention and follow up) working with individuals with ID in comparison with the control group.*

There was partial support for hypothesis one with a significant interaction effect being found for condition by time in psychological distress, with a significant drop in *General Health Questionnaire (GHQ)* scores between pre-and post in the intervention group. This is supportive of the positive impact of the workshop. The finding is consistent with previous research implementing similar workshop based interventions to address work-related stress (Bond & Bunce, 2003; Brinkborg *et al.*, 2011; Flaxman & Bond, 2010b), and in ID services (Bethay, 2010; Noone & Hastings, 2009; Noone & Hastings, 2010; Schwetschenau, 2009). The significant improvements in psychological distress in the intervention group were maintained at follow-up, although analysis found that between post and follow-up there was a significant increase in *GHQ* score. One possible explanation may have been that participants in the intervention group stopped practising the techniques and skills they had learnt in the workshops. For instance, research has proposed the importance of regular practice of mindfulness in order to fully derive benefits such as reduced psychological distress and improved well-being (Carmody & Baer, 2008; Huppert & Johnson, 2010; Kabat-Zinn, 2003). Alternatively, this increase in distress between post and follow-up may be due to participants failing to retain information that had been presented to them. The retention of skills in participants is one of the major challenges of providing effective training workshops (Baldwin & Ford, 1988).

There was also a significant reduction in psychological distress found in the control group between pre-and post, although this was only just statistically significant. One possible explanation for this reduction is the regression to mean effect. Regression to mean has been found to occur in measures of mental health, in that individual scores move towards the mean over time. Hence scores in control groups are often seen to reduce in longitudinal studies (Morton & Torgerson, 2003). The reduction in both the intervention and control group may, therefore, in part be due to a regression to mean effect (Bland & Altman, 1994). Another possibility for a reduction in control group psychological distress, as proposed in an ACT workshop based intervention study with a similar pattern of results (Schwetschenau, 2009), is that participants in the control group knew they were going to receive a stress management intervention in the future (after the completion of the study); and this knowledge may have resulted in a reduction in psychological distress.

A further consideration is that the observed changes in psychological distress (both increases and decreases) may be due to other factors known to influence psychological distress in support staff in ID services, such as client related factors, work-related factors, or changes in participants' lives outside of work (Mutkins *et al.*, 2011). This is discussed further in section 7.4.6.

### **Regression Analysis**

The regression analyses found that participants' scores on the *AAQ-II* and *ERCBS* depression and anger subscale significantly contributed to overall variance accounted for in *GHQ* scores. The absence of significant interaction effect for emotional reactions to challenging behaviour in either subscale suggests that differences in participants' emotional reactions to challenging behaviour over time between the control and intervention group did not explain the



differences between the two groups in psychological distress over time. This finding is discussed further in limitations of measures used in section 7.4.5. The *AAQ-II* scores are discussed below in hypothesis 2.

The regression analyses also indicated that perceived levels of work stressors did not explain the differences between the control and intervention groups in psychological distress over time. In the present study, there was an increase in perceived levels of work stressors between time 1 (pre-intervention) and time 3 (post-intervention). This finding is consistent with findings of previous studies by Noone and Hastings (2009; 2010) that there was a decrease in psychological distress in support staff in the intervention group, despite the support staff reporting a slight increase in perceived levels of work stressors. Noone and Hastings (2010) postulated that their workshops had increased support staff psychological resilience, making them better equipped to tolerate the stressors related to working in intellectual disability services.

**7.2.2 Hypothesis 1b-** *The acceptance and mindfulness-based workshop will significantly enhance well-being in support staff (post intervention and follow up) working with individuals with ID in comparison with the control group.*

Support was not found for the positive impact of the workshop on support staff well-being, as indicated by the lack of a significant interaction effect for condition by time on *WEMWBS* scores. It is worth considering that the *WEMWBS* may not be sensitive enough to detect significant changes in well-being longitudinally, as its validity has been established using cross-sectional analysis (Bartram *et al.*, 2012). The scores in the current study were close to the population median (51), highlighting that there may not have been much possibility for improvement in well-being as measured by the *WEMWBS* (Tennant *et al.*, 2007).

**7.2.3 Hypothesis 2a) and b)** - *Support staff who received the workshop will have significantly greater reductions in thought suppression and experiential avoidance/psychological inflexibility in comparison to support staff in the control condition (at post intervention and follow up).*

One of the main goals of the acceptance and mindfulness-based workshop was to reduce experiential avoidance, which is conceptualised as the most visible part of ‘psychological inflexibility’ (Hayes, Luoma, *et al.* 2006). Previous research applying similar treatment protocols has found changes in psychological inflexibility/experiential avoidance as measured by the *AAQ-I* (Bond & Bunce, 2000; Bond & Bunce, 2003). In the current study, however, there was no significant change in psychological inflexibility/experiential avoidance in participants in the workshop condition. This suggests that either the workshop did not significantly alter experiential avoidance, due to limitations in the implementation of the workshop (discussed further in section 4.4.3); or that the *AAQ-II* was not sensitive enough to detect any change. Research has previously suggested that the *AAQ* may not be sensitive enough to detect important changes at the group level, and it has been proposed that it should be adapted to the specific population area under investigation in order to detect changes in intervention studies (Hayes *et al.*, 2004). The *AAQ-II* has recently been revised due to concerns regarding its psychometric properties (Bond *et al.*, 2011). However, as yet there has been little published research which implements the revised *AAQ-II* as a process measure. Those studies that have found significant changes in experiential avoidance/psychological inflexibility, used earlier versions of the *AAQ*, than were utilised in the present study (Bond & Bunce, 2000; Flaxman & Bond, 2010b, 2010c). This may explain the differences in the results found. Another important explanation is reportedly the diluting effects that

psychologically healthy participants may have on stress management intervention treatment effects (Flaxman & Bond, 2010c). As the current sample included psychologically healthy participants, and given that experiential avoidance is theorised as being a way of reducing psychological distress, then the lower levels of psychological distress may indicate pre-existing lower experiential avoidance. Hence, there may have been less opportunity to reduce these scores.

In terms of thought suppression, there was a significant interaction effect for time by condition, with further analysis suggesting a delayed positive impact of the workshop in the intervention group. There was a significant drop in thought suppression between time 2 (post) and time 3 (follow-up). It is unclear if the significant delayed reductions in levels of thought suppression were due to a delayed effect of the workshop, or were in fact simply a regression to the mean (Bland & Altman, 1994). As with the *AAQ*, it is worth considering whether the *WBSI* was sensitive enough to pick up changes in levels of thought suppression at the group level, and also the potential diluting effects of including psychologically healthy participants in the analysis.

**7.2.4 Hypothesis 3** *-There will be greater improvements in levels of: a) psychological distress; b) well-being; c) thought suppression and d) experiential avoidance/psychological inflexibility, as indicated by a larger effect size, amongst those with pre-intervention scores that indicate clinically significant distress, as compared with the all participants' results.*

The finding of this study was similar to previous research, with the workshop having a greater impact on individuals with higher levels of pre-intervention psychological distress (Bethay, 2010; Flaxman & Bond, 2010; Noone & Hastings, 2010). The results followed similar trends across the outcome measures to the all-participant analysis, but with larger

effect sizes observed. The larger effect sizes were supportive of the greater impact of the workshop on those who were more distressed and hence at greater risk of burn-out (Mutkins *et al.*, 2011). The results suggest, therefore, that this group could usefully be targeted.

In terms of process outcome measures, there was also a similar pattern of results to that observed with the all-participant analysis but with greater effect sizes. It is worth noting that the analyses of the scores of participants with the highest levels of pre-intervention distress were underpowered based on power analysis conducted for this study ( $n=32$  &  $n=33$ ), which increases the likelihood of a type-II error: (Tabachnick *et al.*, 2001). As significant results and large effect sizes were found in this group it suggests the analysis was adequately powered to find large effect sizes. The results of the analysis of participants with the highest levels of pre-intervention psychological distress produced promising findings. However, the sample may not have been sufficiently powered to detect significant medium effect sizes and a larger sample in future research could address this.

### *7.3 End of workshop feedback*

The feedback from the support staff who had received the workshops suggested the majority had found them useful. The workshops were well understood: with 95% of support staff in workshop one, and 96% in the follow-up workshop, understanding all aspects of the topics discussed. This is a particularly encouraging result given that there was a range of educational levels, with many participants having secondary school education only. The majority of the participants fed back that they believed that the workshops would assist them in developing more helpful ways to manage the stresses of working in ID services; with 66% responding that it would affect their work supporting clients with ID and challenging behaviour. This result suggests that support staff can see the benefits of the workshop both on

their management of stress, and also on their role as carer. The participants' comments highlighted that the workshop might not only have a positive impact on their levels of stress, thus freeing up cognitive resources allowing them to focus more on caring; but also that it might help develop a greater awareness of their client's needs. This is supportive of previous findings implementing mindfulness interventions with carers (Singh *et al.*, 2009; Singh *et al.*, 2010; Singh *et al.*, 2004).

Support staff reported that the most useful aspects of the workshops were the mindfulness exercises, the values clarification exercises, and the use of metaphors and analogies to explain material. This highlights the benefits of having a range of practical exercises rather than simply didactic teaching techniques. However, it was noted by participants that the least useful aspects were that, at times, the group discussions went "off topic" and on "tangents that were not relevant". The management of group discussions, therefore is an important consideration for therapists implementing the training protocol in the future and will be considered further in limitations (section 7.4.3).

## *7.4 Limitations of Study*

### *7.4.1 Attrition and Missing Data Management*

A limitation of the current study was the high attrition rate of 27.5% across all participants at follow-up. This may, in part, be due to the fact that participation in the follow-up was dependent on line managers within several voluntary organisations who distributed the questionnaires to support staff, and then coordinated their return. It might have been more useful to have a direct way to contact and follow up the support staff and this should be considered in future research. Published guidance for reducing attrition rates recommends the accurate collection of contact information from participants, factoring in additional time

to collect missing data, sending questionnaires by mail, and conducting telephone or home interviews (Young *et al.*, 2006). Research from sample populations with high levels of attrition, such as substance abusers and the homeless, has also highlighted the importance of more actively following up participants using face-to-face methods to reduce attrition rates (Shadish, 2002). It would have been interesting to be able to explore in greater detail the reasons for attrition/dropout; however one of the assurances provided when participants consented was that they could drop out of the study at any point, without having to provide a reason.

As discussed in the methodology chapter, different methods of management of the missing data which resulted from the high attrition rate were considered. Multiple Imputation is considered the most effective method of management of missing data (Schlomer *et al.*, 2010), however it was not possible to implement this method in the present study because of the highly complex nature of using the technique in mixed ANOVA analysis in the statistical analysis software package used, namely SPSS version 19 (Mayer *et al.*, 2012).

#### *7.4.2 Sampling limitations*

There were several methodological limitations with the randomisation procedure as implemented in this study. Firstly, randomisation occurred before the participants had consented. The CONSORT statement suggests that random allocation should occur after assessment of eligibility and recruitment (Schulz *et al.*, 2010). Secondly, there was no allocation concealment. This is the procedure for protecting the randomisation process so that the condition which the participant is allocated to is not known until he/she has entered into the study. It is considered desirable (Doig & Simpson, 2005), and helps to protect against potential sources of selection bias and confounding variables (Schulz, 2000). As described in

the methodology chapter, there were participants who were allocated to one condition; and ended up in another condition. This is also a possible source of bias as the reason the participants changed conditions is unknown. They may have either been particularly motivated to attend the workshop, or the line manager may have been keen for them to attend or not attend. This may indicate selection bias from a lack of allocation concealment.

Experimental design guidance (Schulz *et al.*, 2010) suggests participant recruitment should ideally be completed in several stages, with the investigators identifying and approaching potential participants before undertaking eligibility screening and enrolling the participants (Gross *et al.*, 2002). In this study, due to time constraints, the line managers within the organisations undertook these two stages. This introduces a potential source of selection bias. Further, the number of potential participants who were not eligible and excluded was unknown, and thus could not be reported as would be recommended (Schulz *et al.*, 2010).

Six-week follow-up data were collected in this study. This could be considered a strength of the design implementation. Arguably it might have been even more useful to collect longer term follow-up data, for instance at six months or a year post workshop in order to observe any longer-term impact of the intervention on outcome measures.

#### *7.4.3 Limitations of the Workshop*

The main aims of the workshop were to reduce experiential avoidance/psychological inflexibility. However, as noted in discussion of hypothesis 2 there was no significant change, although there was a reduction observed in the intervention group with clinically significant levels of psychological distress pre-intervention. This may be understood in the context of limitations of the workshop provided. The acceptance and commitment therapy workshop was implemented over a day, with a half day follow-up/refreshers. It may be more effective to

offer more regular training over a longer period of time with more opportunities to consolidate and practise skills in between sessions. Research suggests that an opportunity to practise skills learnt within training within the work environment, through combining didactic in-service training and on the job coaching is a more effective way to learn new knowledge and skills and ensure they are maintained over time (van Oorsouw *et al.*, 2009). It is proposed that practise of mindfulness skills is particularly important to derive the benefits (Huppert & Johnson, 2010). Therefore shorter regular sessions may be more beneficial to help support staff to practice mindfulness exercises.

As noted in the end of workshop feedback, some of the group discussions went off on tangents. The group dynamics, and the effect that group size has on the effectiveness of the workshop is worth consideration. For instance, larger groups may make active participation in the experiential exercises and group discussions harder to facilitate effectively. It was noted in a previous study implementing a similar intervention that a potential barrier to the full participation in the workshop, and hence effectiveness may be concerns about confidentiality, and participants not wanting to disclose personal information in front of colleagues (Schwetschenau, 2009).

#### *7.4.4 Treatment Adherence and Therapist Experience*

A further limitation of this study is that treatment adherence was not objectively measured. Written checklists could have been used to record, not only the topics covered in the workshop, but also adherence to the Acceptance and Commitment Therapeutic approach and model. Additionally, objective measurements of treatment adherence could have been achieved through the use of rating scales completed by experienced therapists and practitioners. Sessions could then be rated by direct observation or through the use of audio



and visual recordings of sessions/workshops. Observation of sessions/workshops may also have allowed for a rating of the effectiveness and experience of the therapist/principal researcher. Therapist experience is considered important in mindfulness literature (Segal *et al.*, 2002), and is believed to influence therapeutic outcomes. It could well be argued that the therapist in this current study was not a highly experienced mindfulness practitioner/therapist, thus lessening the workshop impact in comparison to a more experienced practitioner. In contrast, researchers have argued that trainee clinical psychologists with limited training and experience in acceptance and commitment therapeutic approaches can produce positive results with clients (Lappalainen *et al.*, 2007).

#### *7.4.5 Limitations of outcome measures used*

As noted earlier in the discussion, some of the outcome measures used in the current study may not have been sensitive enough to detect group changes over time. There is research to suggest that responsiveness to change over time should be considered for measures used longitudinally, alongside the reliability and validity (Guyatt *et al.*, 1987). The measures may also have not been able to detect change due to floor effects (O'Connor *et al.*, 2004). The baseline mean scores for both the intervention and control groups in the current study were below what are considered clinically high-levels of thought-suppression and experiential avoidance (i.e. >50WBSI ;< 24AAQ-II) (Bond *et al.*, 2011; Wegner & Zanakos, 1994).

The *ERCBS* was used in the present study as it has previously been shown to be associated with support staff burnout, and the depression and anger subscale was found to contribute to psychological distress in this study. In current form, however, it may not have been suitable to detect any differences between the groups. It may have been helpful to adapt the *ERCBS* for this current study. Since the acceptance and mindfulness interventions target individual's

relationships with thoughts and feelings, it may have been more interesting to explore if there was a difference in individual's distress caused by their experience of negative emotional reactions to challenging behaviour. For instance, below each item participants could be asked: "how distressed were you by this emotional reaction?"

Finally, there were several other potential process outcome measures that could have been used to explore the impact of the workshop on support staff.

One of the major aims of the acceptance and mindfulness workshop was to encourage support staff to clarify their values (what is really important to them in their lives), and to promote a willingness to experience discomfort in the pursuit of these values. For example, the workshop might encourage support staff to access their desire to promote the independence and develop the well-being of an individual with ID; and further, to be able to do this at times when this is demanding and challenging within their role at work (Noone & Hastings, 2011). Thus, it would have been interesting to measure values. Values and value clarification are seen as key components of acceptance and commitment therapy interventions. Indeed, a specific values measure for ID services has recently been developed to assess support staff values (Noone & Hastings, 2011). This is both in terms of commitment to clients and making a difference to them, as well as other general aspects of the role, including relationships with colleagues. It has been proposed that this measure should be used in future research exploring the use of acceptance and mindfulness workshops (Noone & Hastings, 2011).

It would have been helpful to have a formal measure of mindfulness in participants. It has been proposed that it may be the development of mindfulness skills that may produce the positive impact in support staff (Singh *et al.*, 2006). Recent studies (Erisman & Roemer, 2011; Grossman, 2011) have looked at developing specific measures of mindfulness and

mindfulness skills. Hence, future research might well explore the use of such measures and could also include objective outcome measures and direct observation to measure mindfulness (Singh *et al.*, 2010) in MBI research.

#### 7.4.6 Confounding Variables

Several potentially confounding variables that may have affected psychological distress in support staff were not measured in this current study. One of these was the challenging behaviour displayed by the clients who were supported by the participants. There is conflicting research as to whether there is a direct link between incidents of challenging behaviour and psychological distress (Skirrow & Hatton, 2007). There are two studies that have found no direct link between client challenging behaviour and higher levels of support staff distress (Chung *et al.*, 1996; Chung & Corbett, 1998). By contrast, Devereux *et al.* (2009) found challenging behaviour to be related to emotional exhaustion and higher levels of support staff distress.

Recent research has also suggested that support staff organisational supports, and their satisfaction with the social support available to them has an important role in influencing the levels of psychological distress they experience (Mutkins *et al.*, 2011). Interpersonal relationship issues with colleagues (Alexander & Hegarty, 2000), the interpersonal demands of the helping relationship with the client with ID e.g. the actual type of support required by clients (White *et al.*, 2006), the physical environment in which staff work (Felce, 1998) and that support staff understanding of their client's disability (McGill *et al.*, 2007) have all also been linked to staff stress levels. None of these factors were measured in the current study.

A possible variable/outcome measure which was not measured in this study was support staff rates of absenteeism, sick leave and turnover (Hatton *et al.*, 2001). Ideally, data could have been collected and analysed pre-intervention and post intervention. Potential financial advantages from using an acceptance and mindfulness-based intervention with these support staff might thereby be demonstrable. Previous research has highlighted the potential economic costs of teaching mindfulness skills (Singh *et al.*, 2008).

### *7.5 Areas for future research*

Areas for future research have been proposed throughout this discussion; however this section will suggest further topics and areas worthy of exploration.

Preliminary research has suggested the potential positive enhancement effects of mindfulness-based interventions (MBI) when used in combination with other training, such as Behaviour Analysis training (Singh *et al.*, 2006). Future research could further explore the relative effectiveness of MBI as a stand alone intervention and in combination with components of other training, such as Behaviour Analysis training (Bethay, 2010). Combining training in this form may enable staff to respond more effectively to the demands of their work.

There has been interesting research implemented by Singh *et al.* (2006; 2009) using incidents of challenging behaviour as an outcome measure. Singh *et al.* found a link between mindfulness training and a reduction in incidents of challenging behaviour (Singh *et al.*, 2006; Singh *et al.*, 2009). They suggest that mindfulness may enhance skills in support staff, and therefore reduce incidents of challenging behaviour. This would be useful to explore in relation to this current treatment protocol and could be an area for future study.

Future explorations might also measure the impact of MBI on how support staff interact with their clients. Previous research suggests that support staff interact less with clients who show high levels of challenging behaviour (Hastings & Remington, 1994). It has been proposed that MBI interventions may increase support staff awareness of clients needs (Singh *et al.*, 2004) and make them more resilient and less likely to avoid contact with clients who display challenging behaviour (Noone & Hastings, 2009). Exploring the impact of MBI by means of observable and measurable outcome measures such as direct observation of staff and client behaviour, incidents of challenging behaviour, and client medication use seems promising.

It would be advantageous to develop further process and outcome measures that are specifically adapted to support staff in ID services, such as the previously mentioned *SSVQ* (Noone & Hastings, 2011). In particular, one might envisage a process measure which quantifies any changes in the way support staff relate to their own thoughts/beliefs about clients' challenging behaviour and/or work-related stressors. Further development of this kind of measure might allow researchers to gain a better understanding of the effectiveness of acceptance and mindfulness-based interventions.

### *7.6 Clinical Implications of Findings*

In spite of the limitations of this study discussed throughout the chapter, there are several positive contributions that this research makes to the developing evidence base in applying mindfulness-based interventions to support staff in ID services. This investigation is one of only a few studies exploring the use of an intervention to address support staff psychological distress in ID services.

The finding that the workshop intervention had a positive impact on psychological distress is an important result. Psychological distress has been linked to both mental and physical health

problems, absenteeism and high turnover (Skirrow & Hatton, 2007). An intervention that targets this distress is consequently likely to benefit not only support staff and the organisations in which they work, but also importantly the individuals with ID for whom they provide care. The workshop also had a greater impact on the most stressed support staff. Since these are the individuals that need the greatest help, the results of the present study suggests that interventions should be focussing on them.

The study also contributes to the understanding of process outcomes. The finding that levels of thought suppression were reduced; and that this was a delayed outcome, was a notable one. The non-significant findings of the study emphasise the need for further development of process outcome measures that are applicable and can be adapted to support staff in ID services.

The acceptance and mindfulness-based workshop intervention was implemented over a day and a half. This training format could be considered an efficient use of time and resources. As mentioned in directions for future research, the workshop could also be integrated with other Applied Behaviour Analytic training (Bethay, 2010). This could then be provided to all support staff as part of mandatory training, designed to better prepare them for the demands and needs of the role of working directly with individuals with ID and challenging behaviour.

### *7.7 Conclusion*

In conclusion, this study demonstrated support for the effectiveness of an acceptance and mindfulness-based workshop intervention with support staff in ID services. Crucially, this intervention had a greater impact on the most stressed support staff. Further areas for future research have been highlighted. The study contributes to the growing evidence base for the applicability of mindfulness-based interventions for carers working in ID services.

## **8. Personal Reflection**

The completion of this thesis has not only contributed to the further development of my clinical and research skills, but it has also led to greater reflection on my practice, and life outside of work. Through the practise of acceptance and mindfulness approaches I am now more aware of the constant struggle I face to stay in the present moment. It has helped me to develop my own self-awareness and knowledge of myself, through spending time with my thoughts and feelings. I now know more about what I don't know about myself!

Mindfulness practise has also led me to pay more attention to my therapeutic interactions. This will undoubtedly impact on my future development and practice as a clinical psychologist. An important aspect of the acceptance and mindfulness intervention implemented was the focus on values. It was fascinating to gain a better understanding as to what motivates support staff to do the often very challenging, but rewarding job of working with their clients. This made me reflect on my own values. It encouraged me to think more deeply about what is really important to me, what I want to stand for, and what I want from my career and life.

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## **9. Appendices**



## ***Appendix 1. Search terms for systematic Review:***

### **The database search strategy:**

The following terms were searched with the appropriate wild cards/abbreviations as appropriate:

"mindfulness"

"mindfulness-based"

"Vipassana"

"meditation"

"mindfulness based stress reduction"

"MBSR"

"mindfulness-based cognitive therapy"

"MBCT"

"acceptance-based"

"acceptance and commitment"

“acceptance and commitment therapy”

“dialectical behaviour therapy “

“DBT”

### **In combination with the following terms (with the appropriate abbreviations/wild cards):**

"intellectual disability"

"learning disability"

"intellectual impairment"

"developmental disorder"

“developmental disability”

"developmental delay"

"mental retardation"

"mental handicap"

"global developmental delay".

**Ovid search terms:** Medline, Embase classic and Embase, AMED and PsycINFO.

"mindfulness"

"mindfulness?based\*"

"Vipassana"

"meditation"

"mindfulness?based?stress?reduction"

"MBSR"

"mindfulness?based cognitive therap\*"

"MBCT"

"acceptance?based\*"

"acceptance and commitment"

“acceptance and commitment therap\*”

“dialectical behavior?r therap\* “

“DBT”

1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13

14

"intellectual disabilit\* "

"learning disabilit\* "

"intellectual impair\* "

"developmental disorder\*"

“developmental disabilit\*”

"developmental delay\*"

"mental retard\*"

"mental handicap\*"

"global developmental delay".

15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23

24

24 and 14

26

### **Web of Knowledge Search Strategy**

Topic=((“mindfulness” or “mindfulness?based\*” or “Vipassana” or “meditation” or “mindfulness?based?stress?reduction” or “MBSR” or “mindfulness?based cognitive therap\*” or “MBCT”) or (“acceptance?based\*” or “acceptance and commitment” or “acceptance and commitment therap\*” or “dialectical behavio?r therap\*” or “DBT”))

Topic=(“intellectual disabilit\*” or “learning disabilit\*” or “intellectual impair\*” or “developmental disorder\*” or “developmental disabilit\*” or “developmental delay\*” or “mental retard\*” or “mental handicap\*” or “global developmental delay”).

((“mindfulness” or “mindfulness?based\*” or “Vipassana” or “meditation” or “mindfulness?based?stress?reduction” or “MBSR” or “mindfulness?based cognitive therap\*” or “MBCT”) or (“acceptance?based\*” or “acceptance and commitment” or “acceptance and commitment therap\*” or “dialectical behavio?r therap\*” or “DBT”)) AND (“intellectual disabilit\*” or learning disabilit\*” or “intellectual impair\*” or “developmental disorder\*” or “developmental disabilit\*” or “developmental delay\*” or “mental retard\*” or “mental handicap\*” or “global developmental delay”))

### **Dialog Datastar search terms: ERIC**

"mindfulness"

"mindfulness?based\*"

"Vipassana"

"meditation"

"mindfulness?based?stress?reduction"

"MBSR"

"mindfulness?based cognitive therap\*"

"MBCT"

"acceptance?based\*"

"acceptance and commitment"

“acceptance and commitment therap\*”

“dialectical behavior?r therap\* “

“DBT”

1 -14

"intellectual disabilit\* "

"learning disabilit\* "

"intellectual impair\* "

"developmental disorder\*"

“developmental disabilit\*”

"developmental delay\*"

"mental retard\*"

"mental handicap\*"

"global developmental delay".

15-24

24 and 14

26

### **EBSCO Search terms: Cinahl**

(mindfulness or mindfulness?based\* or Vipassana or meditation or  
mindfulness?based?stress?reduction or MBSR or mindfulness?based cognitive therap\* or  
MBCT)

OR (acceptance?based\* or acceptance and commitment or acceptance and commitment  
therap\* or dialectical behavior?r therap\* or DBT)

AND (intellectual disabilit\* or learning disabilit\* or intellectual impair\* or developmental  
disorder\* or developmental disabilit\* or developmental delay\* or mental retard\* or mental  
handicap\* or global developmental delay).

## Appendix 2: Quality Assessment Tool

Item	Descriptor	Score/rating
<b>Objectives/study type</b>		
1	Aims/ Questions/hypotheses clearly stated or described	0=inadequate 1=Partial 2=Adequate
2	Study type	0 = Uncontrolled trial/case study 1= nonrandomised controlled trial/multiple baseline 2= randomised controlled trial
<b>Sampling and recruitment</b>		
3	The baseline demographic and clinical characteristics of groups/individual are clearly stated to allow comparisons (i.e. Level of intellectual disability, diagnoses stated).	0=inadequate 1=Partial 2=Adequate
4	Inclusion and exclusion criteria stated and used for both groups, where appropriate.	0=Inadequate 1=Partial 2=Adequate Not Applicable
5	A well matched control group is used or, if no control group, attempts are made to control for confounding variables in design.	0=Inadequate 1=Partial 2=Adequate Not Applicable
6	Sufficient numbers of cases were selected and this was based on a power calculation.	0=Inadequate 1=Partial 2=Adequate Not Applicable
<b>Allocation</b>		
7	The process of allocation to groups is adequately described	0=Inadequate 1=Partial 2=Adequate Not Applicable
<b>Assessment of outcomes</b>		
8	Standardised measures applied and validated (i.e. reliability and validity data specified)	0=inadequate 1=Partial 2=Adequate
9	Follow-up data was collected after post –intervention data (i.e. to see if effects were maintained post intervention).	0=inadequate 1=Partial 2=Adequate
<b>Intervention</b>		
10	Intervention adequately described or intervention protocol used.	0=inadequate 1=Partial 2=Adequate
11	Adherence to intervention protocol or intervention quality assessed	0=inadequate 1=Partial 2=Adequate
12	The experience of the therapist was reported. (At least one of the trainers was experienced or trained in teaching mindfulness or ACT)	0=inadequate 1=Partial 2=Adequate
<b>Analysis</b>		
13	Data analysis appropriate to study design and type of outcome measure.	0=inadequate 1=Partial 2=Adequate
14	Attrition rates specified	0=inadequate 1=Partial 2=Adequate Not Applicable
15	Results clearly stated and relate to research aims/hypotheses	0=inadequate 1=Partial 2=Adequate
16	Confidence intervals, effect sizes, p- values etc. Provided where appropriate.	0=inadequate 1=Partial 2=Adequate Not Applicable
<b>External validity</b>		
17	Generalizability of findings, (external validity) discussed	0=inadequate 1=Partial 2=Adequate

#### South East Scotland Research Ethics Service

Waverley Gate  
2-4 Waterloo Place  
Edinburgh  
EH1 3EG



Name: Douglas McConachie  
Address: Edenhall Hospital  
Edenhall Road  
Musselburgh  
EH21 7TZ

Date: 21/02/2011  
Your Ref:  
Our Ref: NR/1102AB18  
Enquiries to: Alex Bailey  
Direct Line: 0131 465 5679  
Email:

Dear Douglas,

**Full title of project: The Use of an Acceptance and Mindfulness-Based Workshop Intervention with Support Staff Caring for Individuals with Intellectual Disabilities**

You have sought advice from the South East Scotland Research Ethics Service on the above project. This has been considered by the Scientific Officer and you are advised that, based on the submitted documentation (1 6 Ethics proposal 21 01 11 Submitted.doc), it does not need NHS ethical review under the terms of the Governance Arrangements for Research Ethics Committees in the UK. The advice is based on the following:

- *The participants are neither patients nor relatives or carers of patients (recruited for this reason) nor are they NHS staff or medical students.*

If this project is being conducted within NHS Lothian you should inform the relevant local Quality Improvement Team(s).

This letter should not be interpreted as giving a form of ethical approval or any endorsement of the project, but it may be provided to a journal or other body as evidence that ethical approval is not required under NHS research governance arrangements. However, if you, your sponsor/funder or any NHS organisation feels that the project should be managed as research and/or that ethical review by a NHS REC is essential, please write setting out your reasons and we will be pleased to consider further. Where NHS organisations have clarified that a project is not to be managed as research, the Research Governance Framework states that it should not be presented as research within the NHS.

You should retain a copy of this letter with your project file as evidence that you have sought advice from the South East Scotland Research Ethics Service.

Yours sincerely,

Alex Bailey  
Scientific Officer  
South East Scotland Research Ethics Service

#### ***Appendix 4. Participant Information and Consent Form***



## **Study title: The Use of an Acceptance and Mindfulness-Based Workshop Intervention with Support Staff Caring for Individuals with Intellectual Disabilities**

### **Invitation to participate**

You are being invited to take part in a research study. Previous studies have shown that working with challenging clients increases the work related stress and worries experienced by support staff; however there has been little research into how best to actually help staff overcome these. The aim of this study is to explore whether a short workshop can help reduce staff stress. Before you decide whether or not to take part, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and feel free to contact me if there are any questions you have about the study.

### **What is the purpose of the study?**

Research has shown that working with individuals with intellectual disability can sometimes be challenging and stressful. This research project aims to explore whether a short workshop can help staff develop more effective ways of coping with stressful feelings they may be experiencing.

The workshop is based on Acceptance and Commitment Therapy (ACT) which has been shown to be helpful in reducing levels of stress for care staff. The workshop will take place over a day and a will involve a half day refresher session a month later. The workshop aims to provide you with different ways of dealing with negative thoughts and experiences. It will also teach methods of becoming more aware and attentive to the immediate moment and will teach different ways for you to cope with stress. It is hoped this study will provide further evidence that the ACT approach is effective in reducing stress in staff working in care environments.

### **Why have I been chosen?**

You have been invited to take part in the study because you have worked directly for **at least six months** , with a person with intellectual disability who displays behaviour that is challenging.



## **Do I have to take part?**

No, if you decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decided to take part you will still be free to withdraw from the research at any time without giving a reason. You are free to attend the workshops without taking part in the research and without having to give any reason for your decision.

## **What will happen to me if I take part?**

You will be assigned to one of two groups and be asked to complete some questionnaires. The first group will attend a full day's workshop based on ACT, with a half day refresher session a month later you will then be contacted after six weeks and six months and asked to complete the questionnaires again. The second group will complete the same questionnaires at the same time points. Once all participants have completed the follow-up questionnaires at six months the second group who did not receive the ACT workshop will be offered a chance to attend a workshop.

All the workshops will be delivered by myself (Douglas McConachie, Trainee Clinical Psychologist). They will consist of a small amount of direct teaching but the focus will be on offering you an opportunity to reflect on how you deal with stress in your job and how effective you are in reducing this. You will not be asked to take part in any role-play. You will be invited to share your views during the workshop, although this is a choice.

The questionnaires you will be asked to complete ask questions about you, how you currently cope with stress and worrying thoughts. They will remain anonymous. You may choose to withdraw your questionnaire at any time without explanation.

## **What are the risks in taking part?**

It is possible, that some staff may become upset as a result of thinking about some of the stresses of their work. While this is unlikely, I am happy to discuss any concerns that come up in the workshop and suggest sources of help. All information shared by participants in the workshops will be confidential, unless it indicates that you or someone else is at risk, or that a criminal act has taken place. This is in keeping with general care policies that are in place to protect clients and staff.

## **What are the benefits of taking part?**

We hope this research will provide evidence for ways of helping staff to cope even better with the pressures and challenges of their jobs.

## **What if I have a complaint?**

If you wish to complain about how the research has been conducted or how you have been treated than the normal University complaints mechanisms are available to you. If we cannot resolve any

complaint that you may have, then you have the right to address your concerns to the University of Edinburgh.

### **Will my taking part in this study be kept confidential?**

Each questionnaire will have a code number and your name will be kept separate from your questionnaire. The results will be collated; however, no individual will be identified in the reporting of the study.

### **What will happen to the results of the research study?**

It is hoped that the results of the study will add to the body of knowledge regarding staff well-being and working in services for people with intellectual disability. The results will be written up for a doctoral thesis and will be submitted for publication in a learning disability journal. The results will also be available for participants.

### **Contact for further information:**

If you have any questions, or would like more information about the study or would like a copy of the results, then please contact me at the address below:

Douglas McConachie  
Trainee Clinical Psychologist  
Department of Clinical Psychology  
Edenhall Hospital  
Edenhall Road  
Musselburgh  
EH21 7TZ  
**Telephone: 0131 536 8101**

Finally, I would like to thank you for taking the time to read this information.

# CONSENT FORM



## Study title: The Use of an Acceptance and Mindfulness-Based Workshop Intervention with Support Staff Caring for Individuals with Intellectual Disabilities

Name of researcher: Douglas McConachie

Please read the following and initial or tick the boxes.

	Initial Box
1. I confirm that I have read and understand the information sheet dated 21 January 2011 for the above study and have had the opportunity to ask questions.	
2. I confirm that I have received enough information about the study.	
3. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason.	
4. I understand that the information that I provide will remain anonymous and remain confidential. I understand that the researcher may break confidentiality if I was to reveal any information indicating that I or someone else was at risk or that a criminal act had taken place.	
5. I agree to take part in the above study.	

Name of participant	Date	Signature
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Researcher	Date	Signature
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## *Appendix 5. Reliability of measures and correlations of items.*

Table 8.1: Reliability of Scales-Cronbach Alpha Coefficient scores:

SCALE	Pre	Post	Follow-up
GHQ	.872	.774	.791
WEMWBS	.908	.876	.887
SSQ	.921	.922	.918
AAQ-II (7 item)	.860	.830	.849
WBSI	.927	.925	.915
ERACBS Dep/Ang	.789	.776	.760
ERACBS Fear/Anx	.678	.689	.624

These reliability scores were calculated using all completed questionnaires.

In short scales of below 10 items it is not uncommon to have low Cronbach alpha values. The ERACBS Fear/Anx has only 5 items. In this case it may be more appropriate to report the mean inter-item correlation for the items. Briggs and Cheek (1986) recommend an optimal range for the inter-item correlation of .2 to .4.

Table 8.2: Pearson Product-Moment Correlations Between Emotional Reactions to Challenging Behaviour Scale- Fear/Anxiety items

Item	17	6	24	9
17				
6	.509**			
24	.393**	.401**		
9	.098	.121	.247**	
1	.227*	.388**	.425**	.265**

\*\*Correlation is significant at the 0.01 level (2-tailed). \*Correlation is significant at the 0.05 level (2-tailed)

## ***Appendix 6. Mann-Whitney and Chi Square Tests for demographics.***

**Table 8.3.** Mann-Whitney U scores with grouping variable intervention or control condition.

	<b>LD experience years &amp; months</b>	<b>Hours worked per week</b>	<b>Age in years</b>
Mann-Whitney U	1631.0	1716.0	1688.0
Wilcoxon W	3842.0	3201.0	3899.0
Z	-.797	-.354	-.496
Significance. (2-tailed)	.426	.723	.620

**Table 8.4.** Gender by intervention or control condition Chi-Square Tests

	<b>Value</b>	<b>Df</b>	<b>Asymp. Sig. (2-sided)</b>	<b>Exact Sig. (2-sided)</b>	<b>Exact Sig. (1-sided)</b>
Pearson Chi-Square	.668 <sup>a</sup>	1	.414		
Continuity Correction <sup>b</sup>	.369	1	.543		
Likelihood Ratio	.673	1	.412		
Fisher's Exact Test				.530	.273
Linear-by-Linear Association	.663	1	.416		
N of Valid Cases	120				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.95.

b. Computed only for a 2x2 table

**Table 8.5.** Education by intervention or control condition Chi-Square Tests.

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.311 <sup>a</sup>	2	.519
Likelihood Ratio	1.330	2	.514
Linear-by-Linear Association	1.150	1	.284
N of Valid Cases	120		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 10.35.

**Table 8.6.** Professional Qualification by intervention or control condition Chi-Square Tests.

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.012 <sup>a</sup>	1	.912		
Continuity Correction <sup>b</sup>	.000	1	1.000		
Likelihood Ratio	.012	1	.912		
Fisher's Exact Test				1.000	.530
Linear-by-Linear Association	.012	1	.912		
N of Valid Cases	120				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 24.30. b. Computed only for a 2x2 table

***Appendix 7. End of workshop Feedback Forms***

# END OF WORKSHOP 1 QUESTIONS

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1. How useful did you find the workshop? Please rate (circle number):

<b>Poor</b> 1	2	3	4	<b>Excellent</b> 5
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Please comment:

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2. What aspect of the workshop did you find most useful?

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3. What aspect of workshop did you find least useful?

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4. To what extent did you understand the ideas discussed in the workshop? Please rate (circle number):

<b>Did not understand</b> 1	2	3	4	<b>Fully understood</b> 5
--------------------------------	---	---	---	------------------------------

5. Were there any aspects of the workshop that you did not understand?

Yes ☐ No ☐

If yes, please describe below:

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---

**PLEASE TURN OVER**



6. To what extent do you think the workshop will help you to develop more helpful ways to manage the stress of working with clients with challenging behaviour and intellectual disabilities? Please rate (circle number):

<b>Not at all</b> 1	2	3	4	<b>To a large extent</b> 5
------------------------	---	---	---	-------------------------------

Please describe below:

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7. To what extent do you think the workshop will have any effect on your work supporting clients with challenging behaviour and intellectual disabilities? Please rate (circle number):

<b>Not at all</b> 1	2	3	4	<b>To a large extent</b> 5
------------------------	---	---	---	-------------------------------

Please describe below:

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8. To what extent do you think the workshop will have any effect on your life outside of work? Please rate (circle number):

<b>Not at all</b> 1	2	3	4	<b>To a large extent</b> 5
------------------------	---	---	---	-------------------------------

Please describe below:

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# END OF WORKSHOP 2 QUESTIONS

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1. How useful did you find the workshop? Please rate (circle number):

<b>Poor</b> 1	2	3	4	<b>Excellent</b> 5
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Please comment:

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2. What aspect of the workshop did you find most useful?

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3. What aspect of workshop did you find least useful?

---

---

---

---

4. To what extent did you understand the ideas discussed in the workshop? Please rate (circle number):

<b>Did not understand</b> 1	2	3	4	<b>Fully understood</b> 5
--------------------------------	---	---	---	------------------------------

5. Were there any aspects of the workshop that you did not understand?

Yes ☐ No ☐

If yes, please describe below:

---

---

**PLEASE TURN OVER**

6. To what extent do you think the workshop will help you to develop more helpful ways to manage the stress of working with clients with challenging behaviour and intellectual disabilities? Please rate (circle number):

<b>Not at all</b> 1	2	3	4	<b>To a large extent</b> 5
------------------------	---	---	---	-------------------------------

Please describe below:

---

---

7. To what extent do you think the workshop will have any effect on your work supporting clients with challenging behaviour and intellectual disabilities? Please rate (circle number):

<b>Not at all</b> 1	2	3	4	<b>To a large extent</b> 5
------------------------	---	---	---	-------------------------------

Please describe below:

---

---

8. To what extent do you think the workshop will have any effect on your life outside of work? Please rate (circle number):

<b>Not at all</b> 1	2	3	4	<b>To a large extent</b> 5
------------------------	---	---	---	-------------------------------

Please describe below:

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9. How often have you practised any of the exercises and techniques taught in workshop (e.g. "being in the present moment exercise" and willingness/mindfulness exercises CD)?

- ☐ Every day.
- ☐ 3 or more times a week
- ☐ 1 to 2 times a week
- ☐ Less than four times a month
- ☐ Not at all

## ***Appendix 8. Description of the Acceptance and Mindfulness Based Intervention***

The approach used by Noone and Hastings (2009; 2010) involves a full day workshop followed by a half day follow-up and refresher session. The workshop was presented using PowerPoint slides in the same order to ensure adherence to the protocol. A more detailed protocol is available in: Bond, F.W., & Hayes, S.C. (2002). *Act at Work* Bond, F., & Hayes, S. (2002). *ACT at work.*, pp117-140. In: Bond, F. W., Dryden, W., & Ebrary, I. (2002). *Handbook of brief cognitive behaviour therapy*: Wiley Online Library.

### ***Day one: Morning session***

The morning session had two goals (Noone & Hastings, 2009;2010). The first was to promote a willingness to review the impact of negative thoughts and emotional responses on their life. In small groups, support staff were asked to describe the physical, behavioural, and cognitive impact of stress. Support staff were asked about their current coping mechanisms and how effective they were at removing stress. By considering that the coping mechanisms that they are currently using may be ultimately ineffective, the concept was introduced that any attempt to control and remove aversive experience may actually be a bigger problem than the initial stressful event. As a solution to this dilemma, support staff were encouraged to become willing to engage with any stressful experience fully, without attempting to avoid it.

The second major goal was to get support staff to discriminate themselves from their thoughts. This was achieved through mindfulness exercises. Support staff were asked to practise reducing the dominance of one sensation over all others (as happens when one is stressed). Also, the exercises helped support staff to experience their thoughts, feelings and sensations as separate processes with which they can choose to engage with, or not. That is, to take literally "a thought" a process which is referred to within the acceptance and commitment therapy literature as cognitive fusion (Hayes, Strosahl, & Wilson, 1999).

### **Brief summary:**

- Understanding what it is like caring for individuals with ID and Challenging Behaviour.
- Describing the challenges of their job as support staff in ID services; and evaluating how successful are their present methods of coping.
- The promotion of acceptance and willingness to thoughts, feelings and sensations. (Hayes et al., 1999, pp 123-124)
- What are normal and abnormal/difficult thoughts and feelings. How do we react to them-Concept of "clean versus dirty discomfort" (Hayes et al., 1999, p136).
- First willingness/mindfulness exercise-"leaves on a stream" (Hayes et al., 1999, pp158-162).
- Thoughts on card exercise (Bethay, Wilson & Moyer, 2009, pp223-243)
- Face to Face exercise.

### ***Day one: Afternoon session***

The second half of the day could be described as "discriminating core values". This is invaluable as it provides a rationale for the acceptance of aversive experiences. Firstly, this allows support staff to consider whether they are currently living a life in accordance with their values. This is particularly important for times of becoming absorbed by thoughts and not therefore being available for the most important areas of one's life. Secondly, by identifying what these important values are, support staffs had an opportunity to commit to them. Importantly, this commitment is not contingent on the absence of internal distress (Noone & Hastings, 2009).

**Brief summary:**

- Values clarification exercises-“Retirement party”, “Coat of Arms”. Encourage support staff to think about their values.
- Values assessment with worksheets (Hayes et al., 1999 pp 224 to 227).
- Further values exercise-Writing their own eulogy/values worksheets-the “Happiness trap” (Hayes et al., 1999 p 216).
- Homework exercises (mindfulness)-daily practice of "leaves on a stream", present moment exercise (Bethay et al., pp 236-237).
- Unwanted party guest video (you tube, Dr Russ Harris).

*Day two: Refresher session*

This session's main aim was to review and revise the previous work and overcome the “roadblocks”, or obstacles to living a value-consistent life (Noone & Hastings, 2009). This session involved practising of mindfulness exercises and group discussion of some of the areas of difficulty/challenges associated with mindfulness practice.

**Brief summary:**

- Review of homework exercises
- “Soldiers in the parade” (Hayes et al., 1999, pp 148 to 162)
- “Bubble in the road” metaphor (Hayes et al., 1999, pp 230)
- “Tin can monster” exercise (Hayes et al., 1999, pp 171 to 174)
- Review of values.
- Personal statement of commitment to values.

## *Appendix 9. Table of tests of Normality*

Table of tests of Normality for EM analysis:

Scale	Kolmogorov-Smirnov	Shapiro-Wilk	Skewness	Standard Error (SE) of Skewness	Kurtosis	SE of Kurtosis	Z score of Skewness	Z score of Kurtosis
<b>T1 WEMWBS</b>								
Intervention	.200	.341	-.174	.295	.583	.582	-0.59	1.00
Control	.200	.240	.396	.325	-.372	.639	1.22	-0.58
<b>T2 WEMWBS</b>								
Intervention	.200	.806	-.225	.295	-.017	.582	-0.76	-0.03
Control	.200	.319	.393	.325	-.282	.639	1.21	-0.44
<b>T3 WEMWBS</b>								
Intervention	.200	.586	-.109	.295	-.392	.582	-0.37	-0.67
Control	.200	.017	.719	.325	.325	.639	2.21	0.51
<b>T1 AAQ</b>								
Intervention	.200	.125	.346	.295	-.238	.582	1.17	-0.41
Control	.079	.168	.382	.325	-.422	.639	1.18	-0.66
<b>T2 AAQ</b>								
Intervention	.200	.143	.216	.295	-.492	.582	0.73	-0.85
Control	.200	.184	-.459	.325	-.417	.639	-1.41	-0.65
<b>T3 AAQ</b>								
Intervention	.200	.296	.228	.295	-.515	.582	0.77	-0.88
Control	.200	.333	.468	.325	-.203	.639	1.44	-0.32

Scale	Kolmogorov-Smirnov	Shapiro-Wilk	Skewness	Standard Error (SE) of Skewness	Kurtosis	SE of Kurtosis	Z score of Skewness	Z score of Kurtosis
<b>T1 WBSI</b>								
Intervention	.200	.331	-.310	.295	-.031	.582	-1.05	-0.05
Control	.200	.032	-.399	.325	-.531	.639	-1.23	-0.83
<b>T2 WBSI</b>								
Intervention	.200	.230	-.478	.295	.420	.582	-1.62	0.72
Control	.200	.262	-.296	.325	-.735	.639	-0.91	-1.15
<b>T3 WBSI</b>								
Intervention	.046	.006	-.989	.295	1.946	.582	-3.35	3.34
Control	.200	.578	-.265	.325	-.402	.639	-0.82	-0.63
<b>T1 ERACBS-Depression/Anger</b>								
Intervention	.200	.200	.479	.295	-.055	.582	1.62	-0.09
Control	.001	.002	.803	.325	-.140	.639	2.47	-0.22
<b>T2 ERACBS-Depression/Anger</b>								
Intervention	.200	.259	.256	.295	-.415	.582	0.87	-0.71
Control	.003	.001	.800	.325	.103	.639	2.46	0.16
<b>T3 ERACBS-Depression/Anger</b>								
Intervention	.200	.214	.180	.295	-.666	.582	0.61	-1.14
Control	.008	.008	.454	.325	-.744	.639	1.40	-1.16

Scale	Kolmogorov-Smirnov	Shapiro-Wilk	Skewness	Standard Error (SE) of Skewness	Kurtosis	SE of Kurtosis	Z score of Skewness	Z score of Kurtosis
<b>T1 ERACBS-Anxiety/Fear</b>								
Intervention	.004	.037	.319	.295	-.228	.582	1.08	-0.39
Control	.008	.070	.063	.325	-.677	.639	0.19	-1.06
<b>T2 ERACBS-Anxiety/Fear</b>								
Intervention	.200	.085	.185	.295	-.116	.582	0.63	-0.20
Control	.044	.144	.173	.325	-.232	.639	0.53	-0.36
<b>T3 ERACBS-Anxiety/Fear</b>								
Intervention	.200	.084	.398	.295	.431	.582	1.35	0.74
Control	.067	.144	-.059	.325	-.835	.639	-0.18	-1.31
<b>T1 SSQ</b>								
Intervention	.010	.002	.715	.295	-.287	.582	2.42	-0.49
Control	.200	.041	.764	.325	.756	.639	2.35	1.18
<b>T2 SSQ</b>								
Intervention	.003	.001	.818	.295	-.058	.582	2.77	-0.10
Control	.003	.005	.987	.325	1.232	.689	3.04	1.79
<b>T3 SSQ</b>								
Intervention	.001	.002	.727	.295	-.166	.582	2.46	-0.29
Control	.007	.010	.956	.325	1.282	.639	2.94	2.01

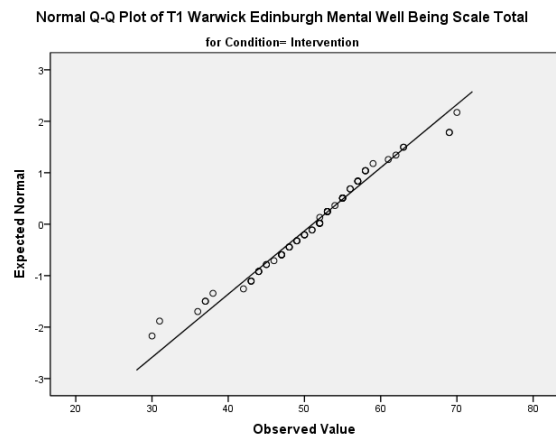
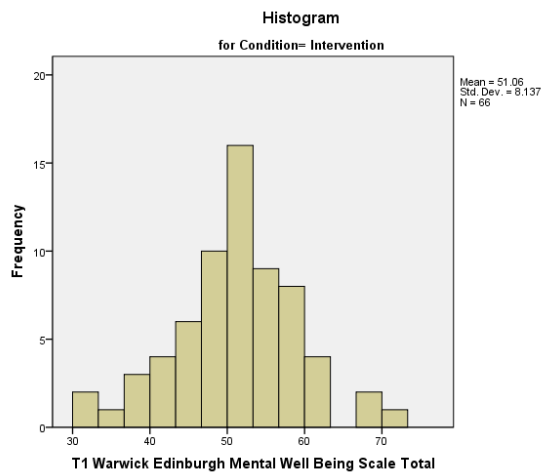


Scale	Kolmogorov-Smirnov	Shapiro-Wilk	Skewness	Standard Error (SE) of Skewness	Kurtosis	SE of Kurtosis	Z score of Skewness	Z score of Kurtosis
<b>T1 GHQ</b>								
Intervention	.002	.012	.600	.295	-.208	.582	2.03	-0.36
Control	.024	.070	.475	.325	1.199	.639	1.46	1.88
<b>T2 GHQ</b>								
Intervention	.188	.237	.523	.295	.805	.582	1.77	1.38
Control	.200	.007	.952	.325	2.721	.639	2.93	4.26
<b>T3 GHQ</b>								
Intervention	.007	.073	.624	.295	.409	.582	2.12	0.70
Control	.200	.153	.232	.325	1.374	.639	0.71	2.15

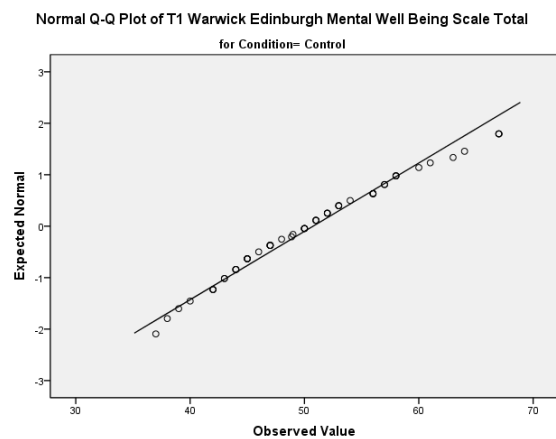
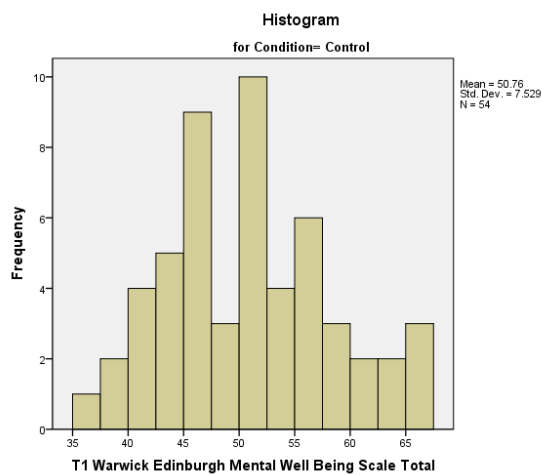
## ***Appendix 10. Histograms and Normal QQ-Plots***

## WEMWBS Histograms and QQ-Plots

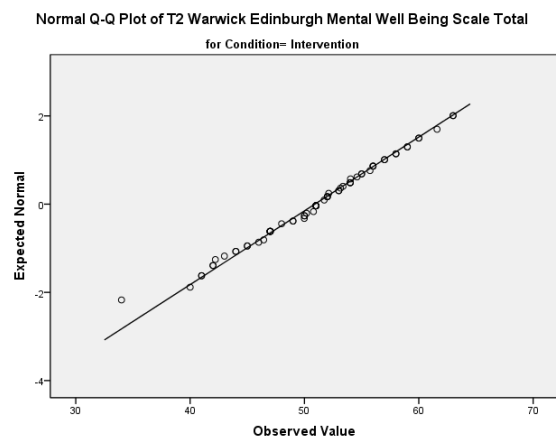
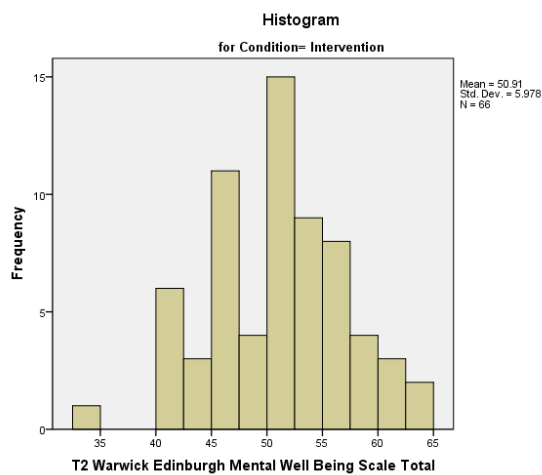
### Time 1 Intervention:



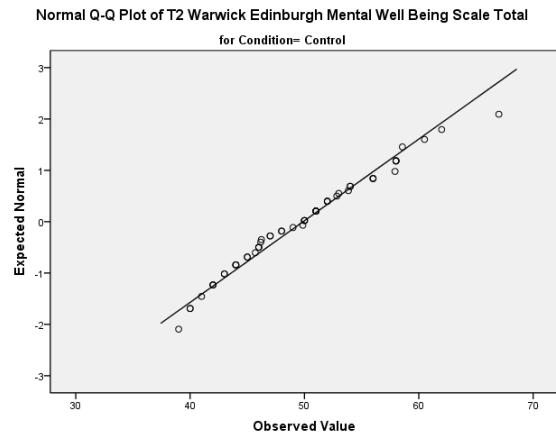
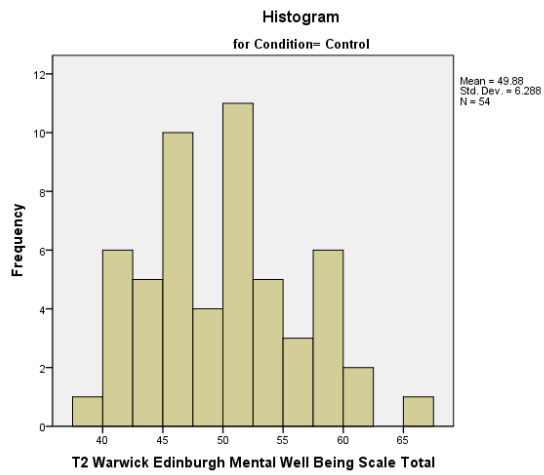
### Time 1 Control:



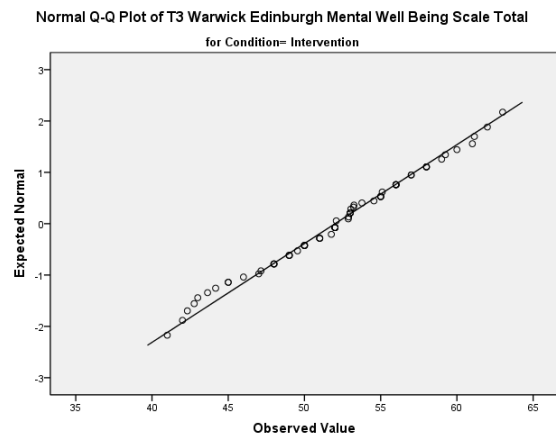
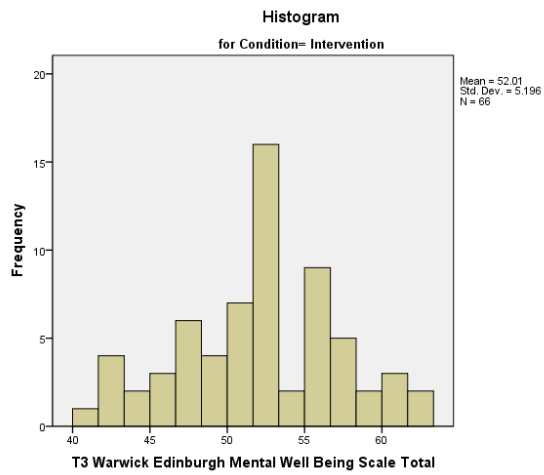
### Time 2 Intervention:



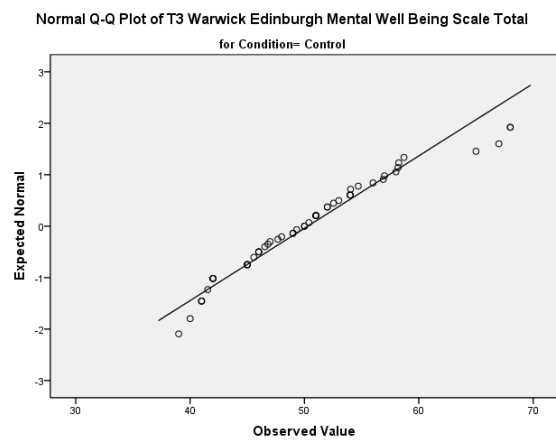
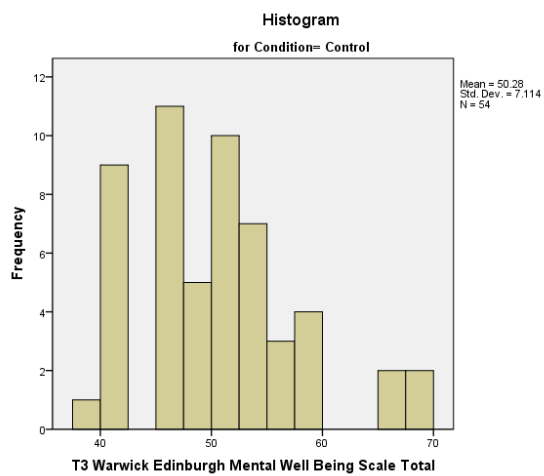
## Time 2 Control:



## Time 3 Intervention:

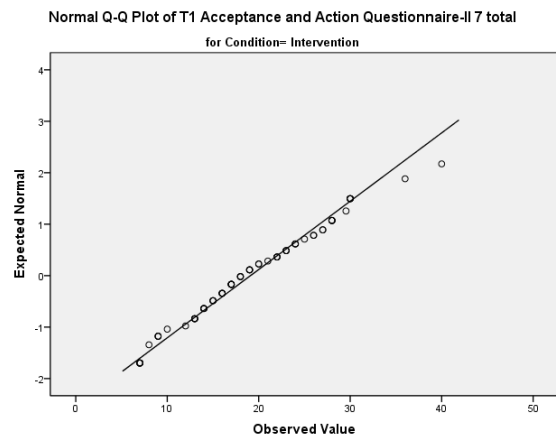
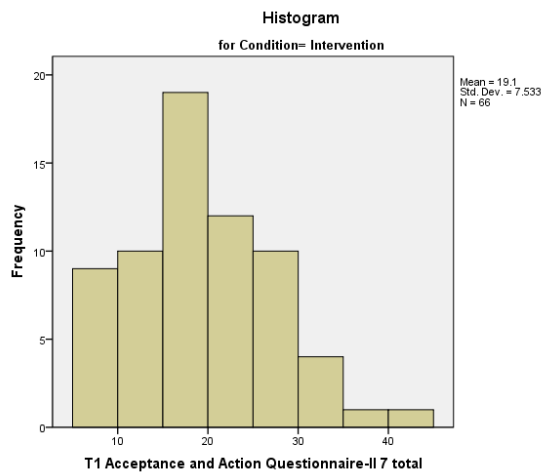


## Time 3 Control:

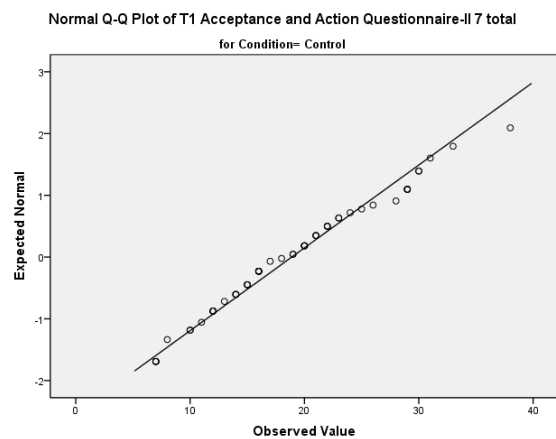
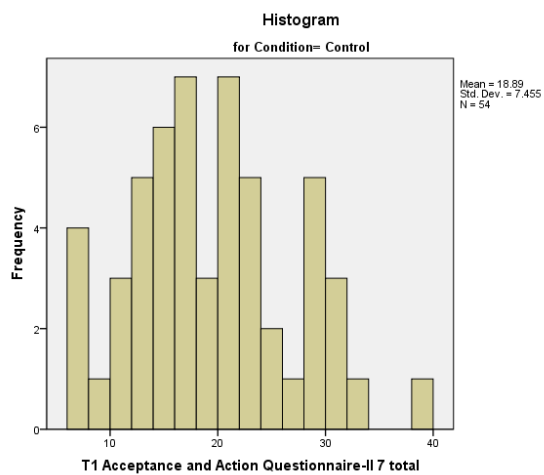


## AAQ Histograms and QQ plots

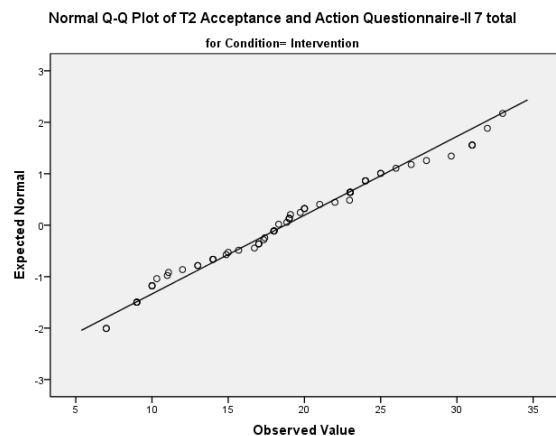
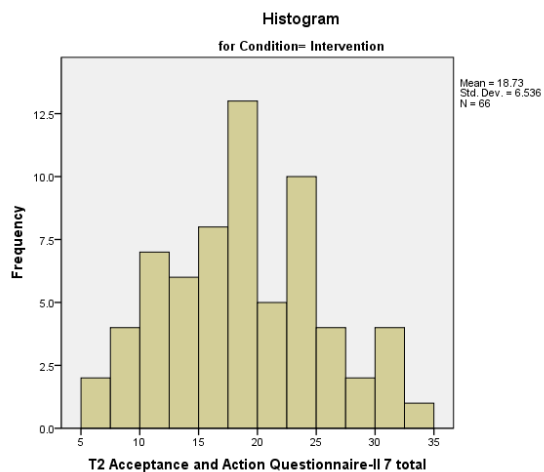
### Time 1 Intervention:



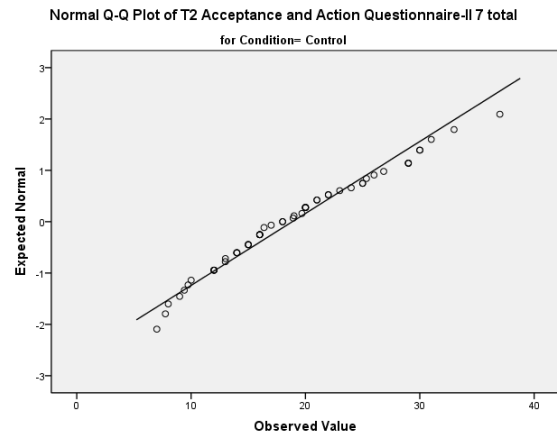
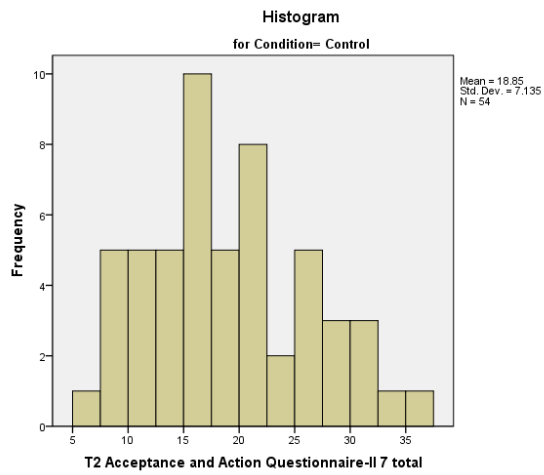
### Time 1 Control:



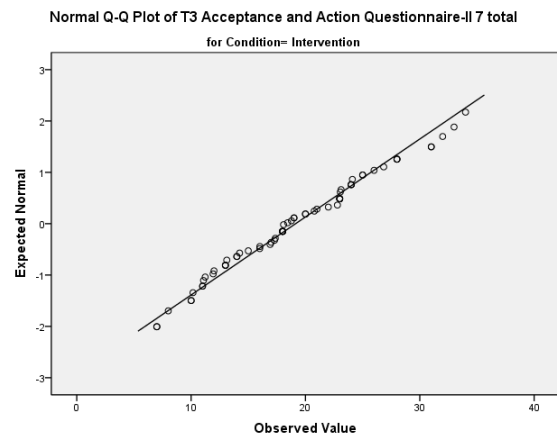
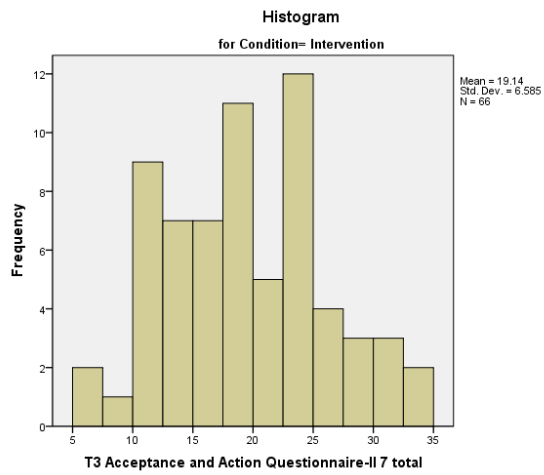
### Time 2 Intervention:



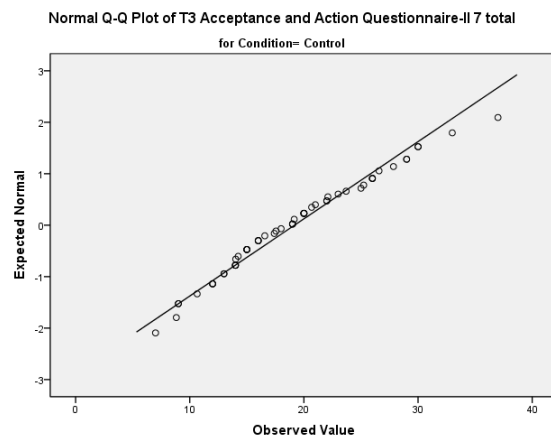
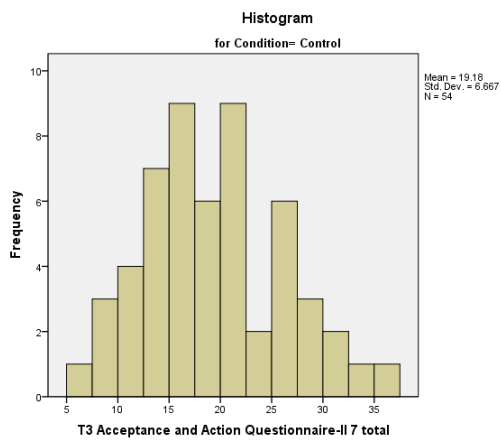
## Time 2 Control:



## Time 3 Intervention:

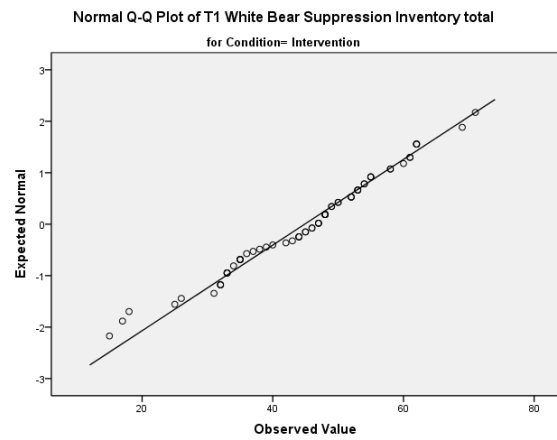
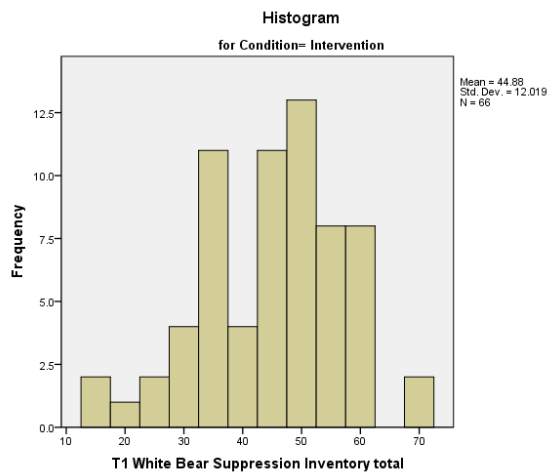


## Time 3 Control:

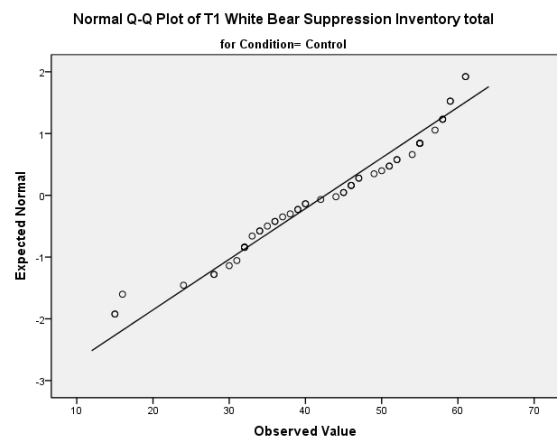
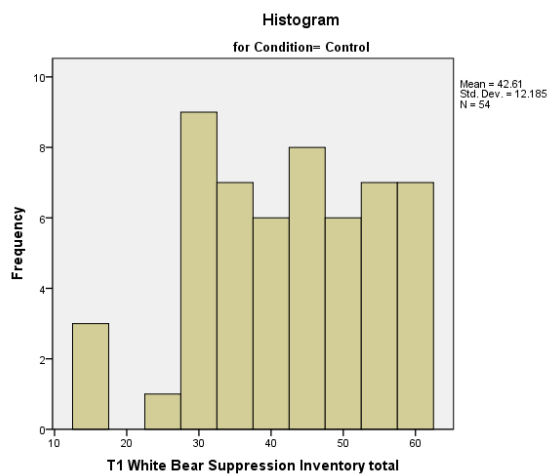


## WBSI Histograms and QQ plots

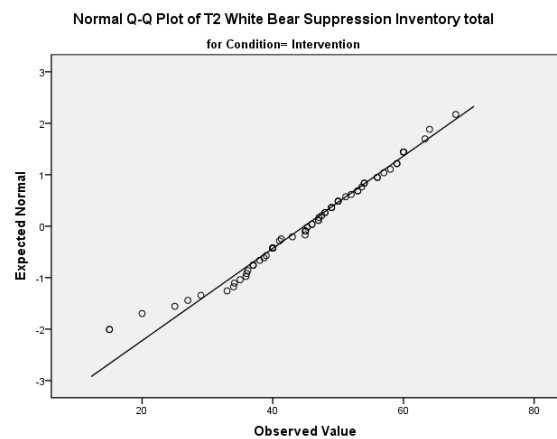
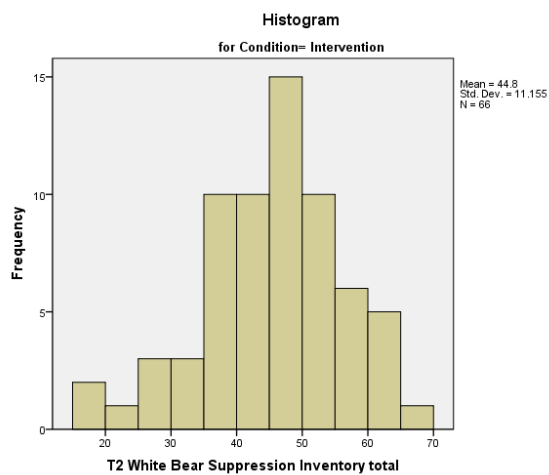
### Time 1 Intervention:



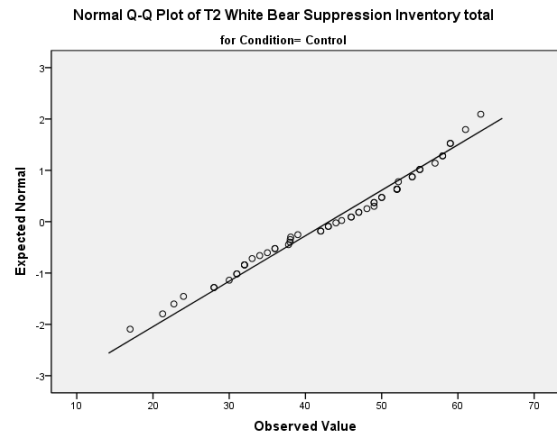
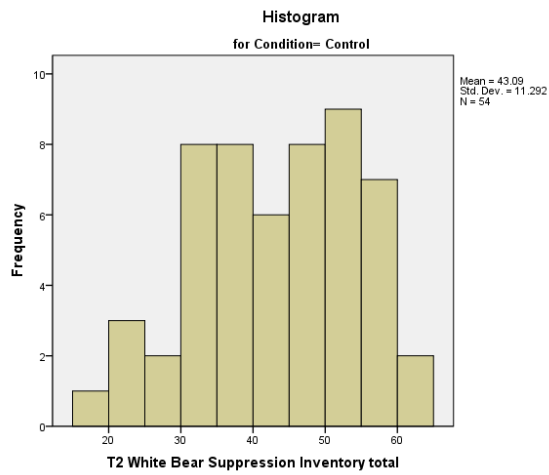
### Time 1 Control:



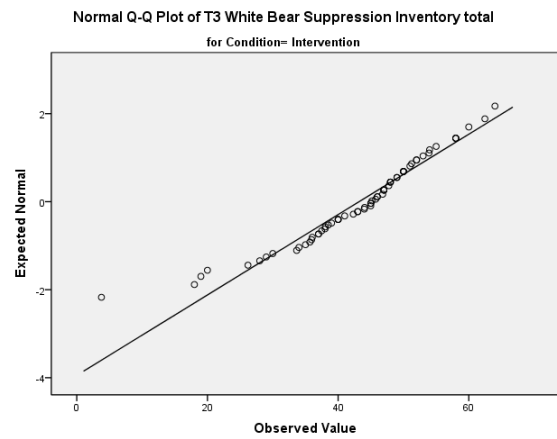
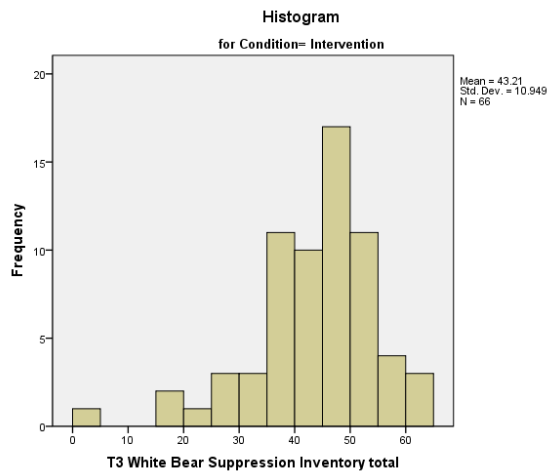
### Time 2 Intervention:



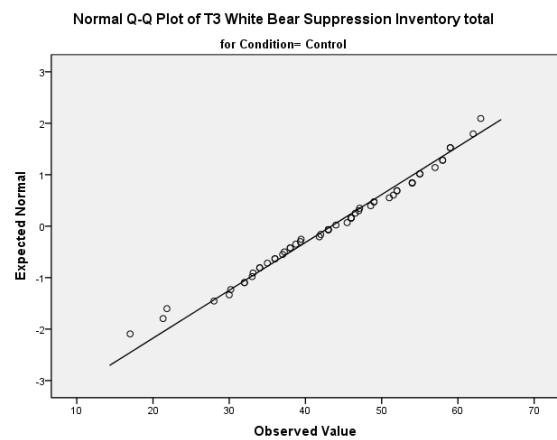
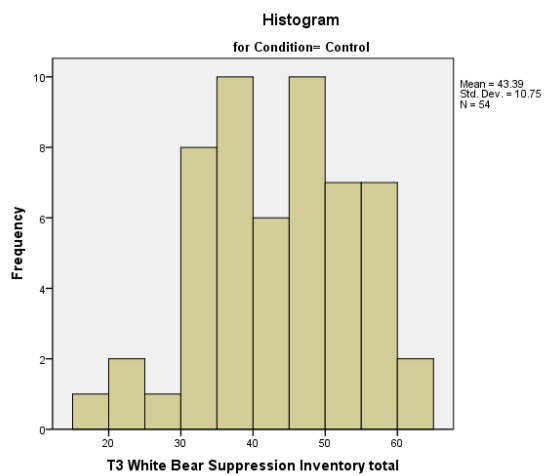
## Time 2 Control:



## Time 3 Intervention:



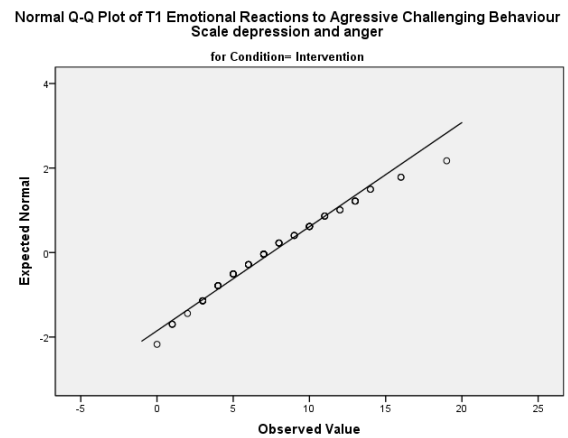
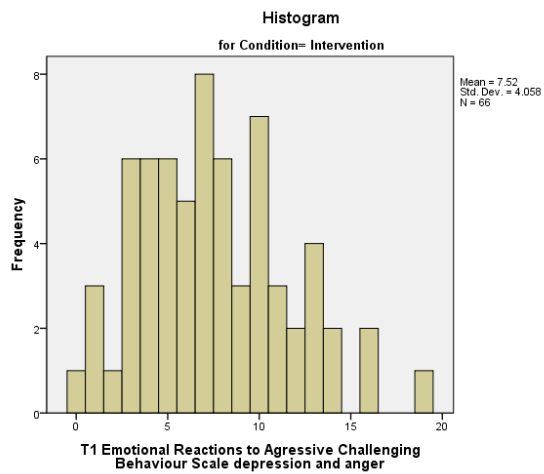
## Time 3 Control:



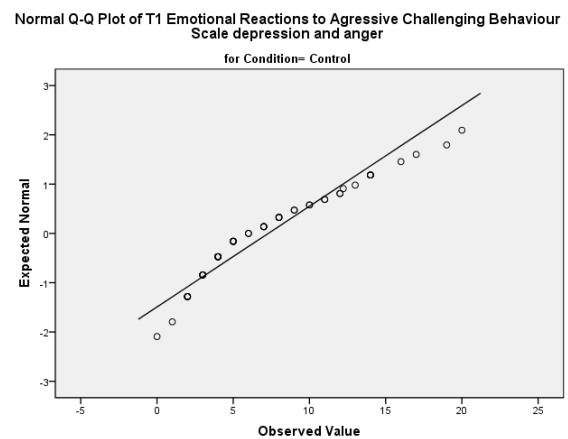
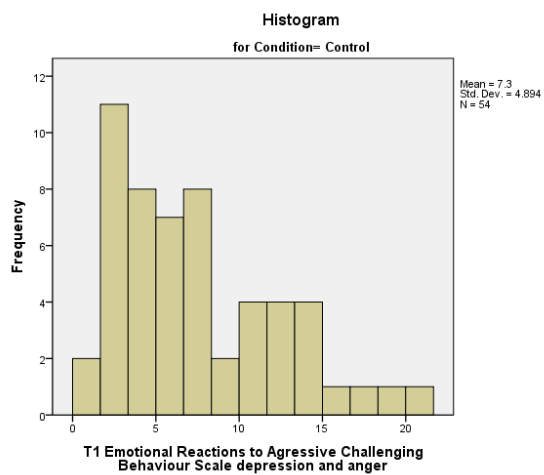


## ERCBS Depression and Anger Histograms and QQ plots

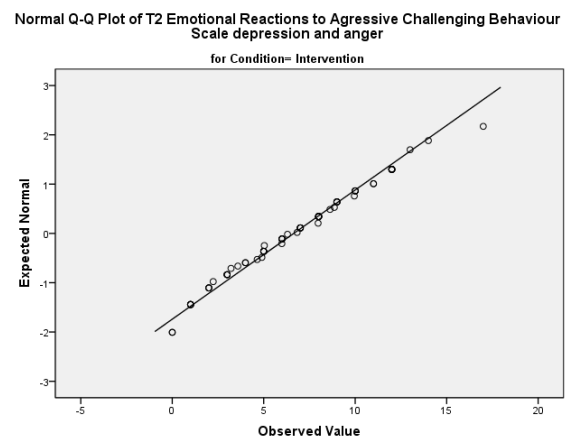
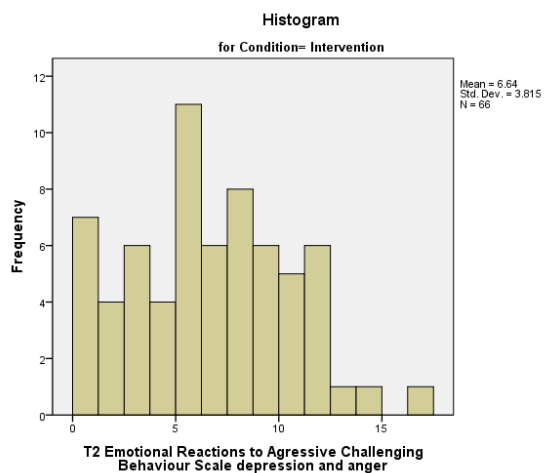
Time 1 Intervention:



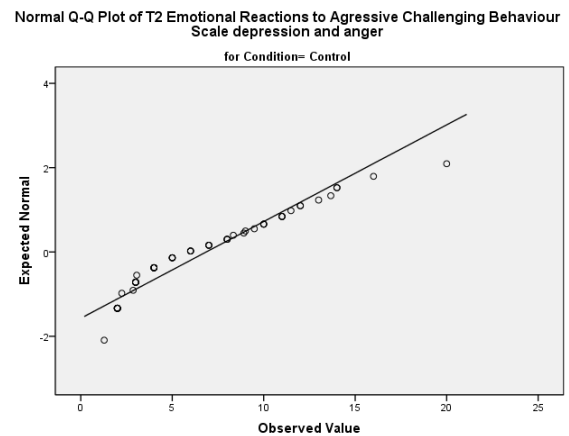
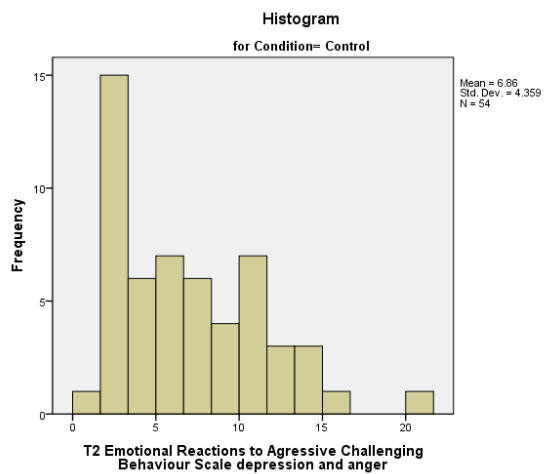
Time 1 Control:



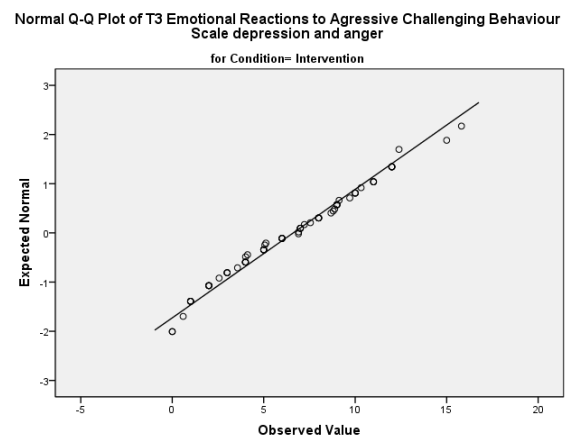
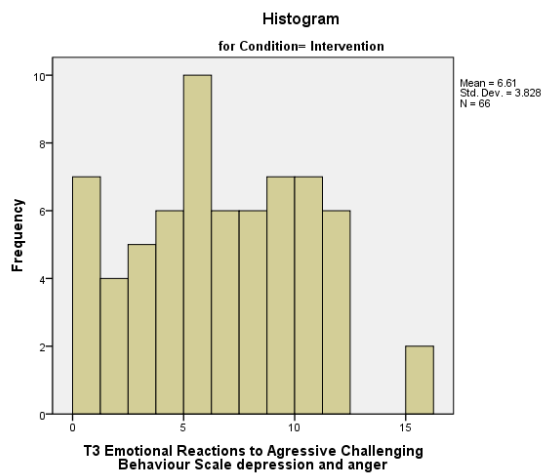
Time 2 Intervention:



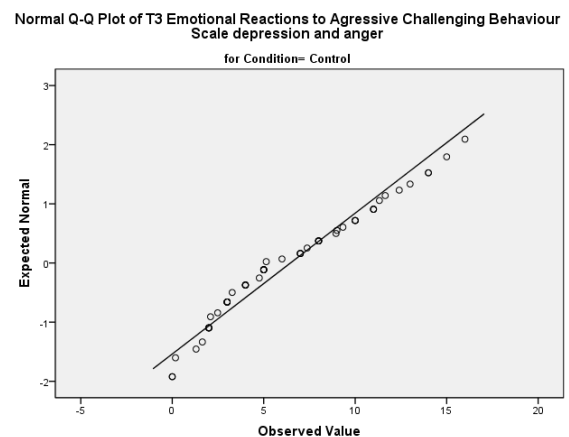
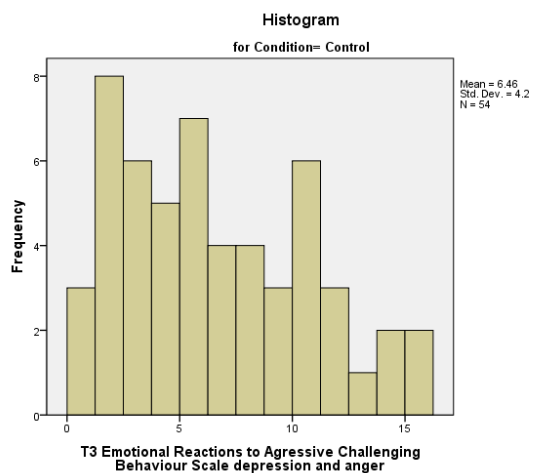
## Time 2 Control:



## Time 3 Intervention:

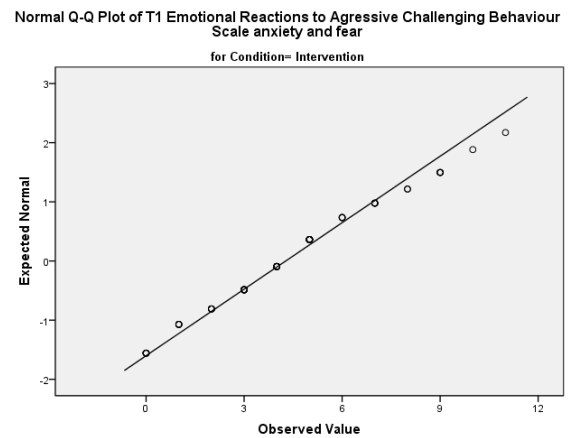
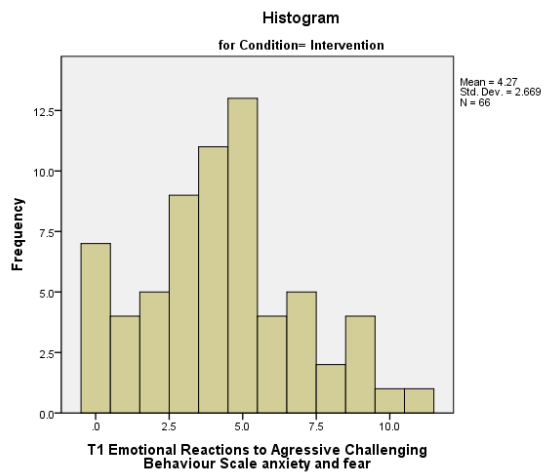


## Time 3 Control:

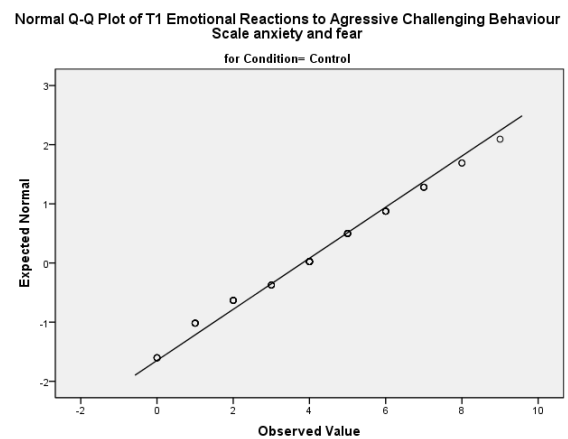
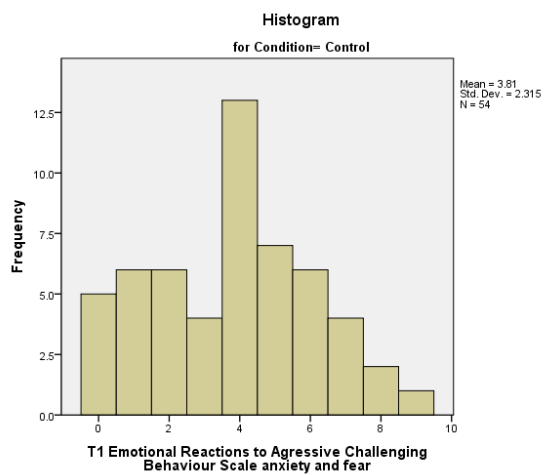


## ERCBS Anxiety and Fear Histograms and QQ plots

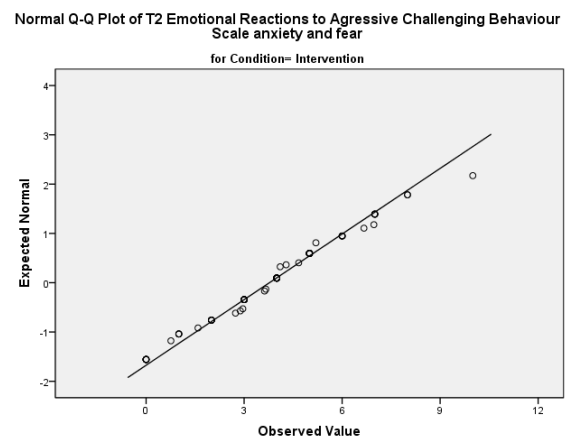
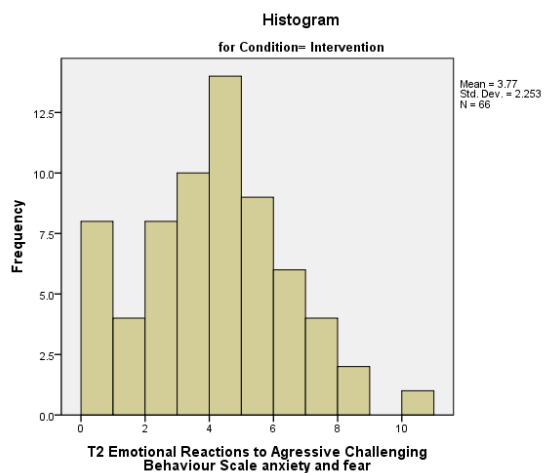
### Time 1 Intervention:



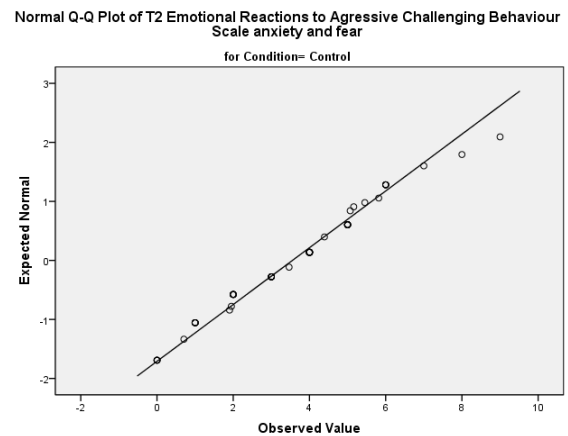
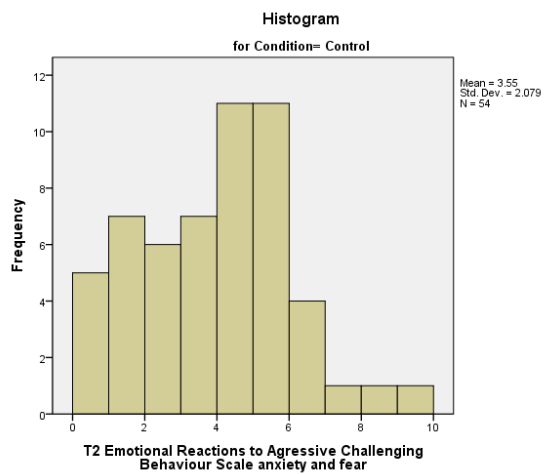
### Time 1 Control:



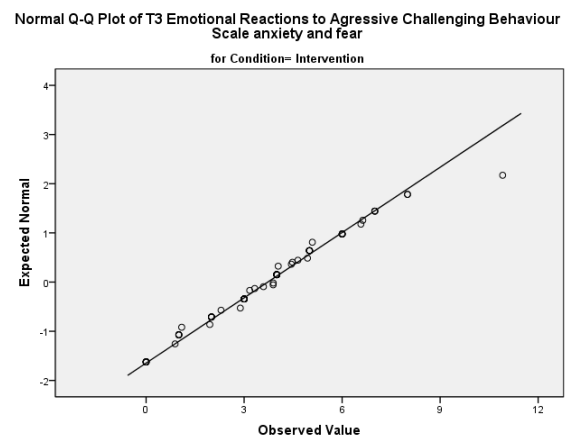
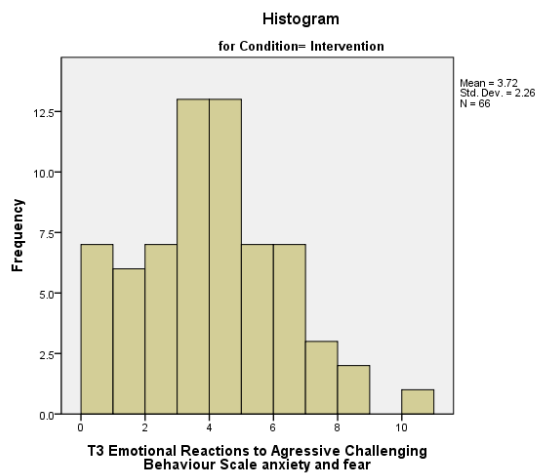
### Time 2 Intervention:



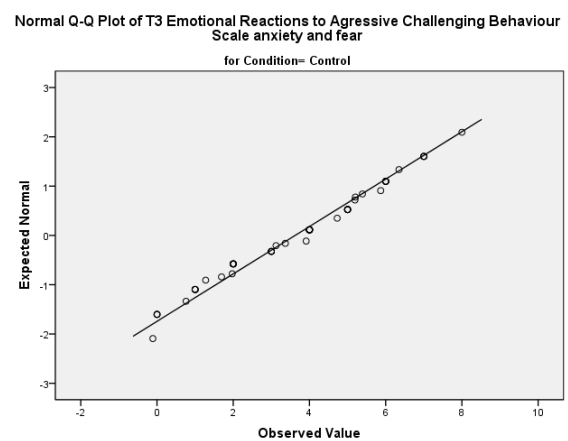
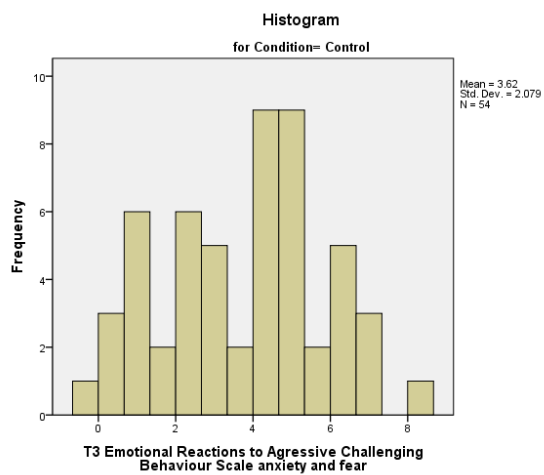
## Time 2 Control:



## Time 3 Intervention:

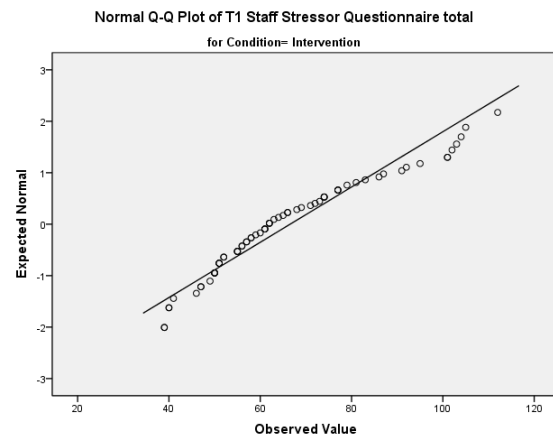
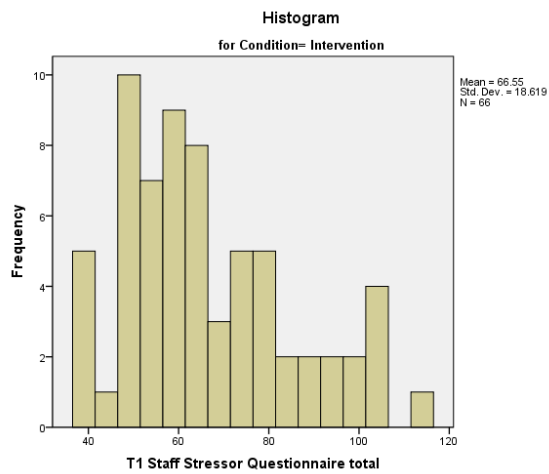


## Time 3 control:

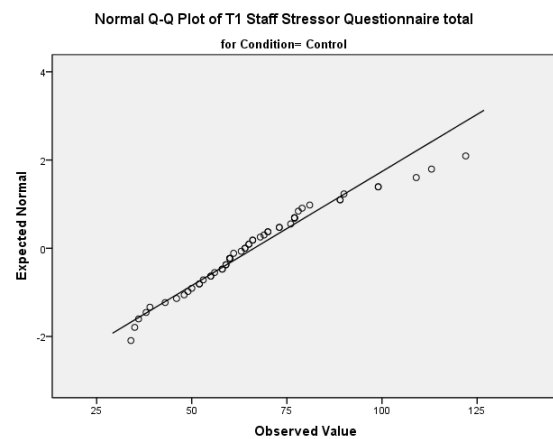
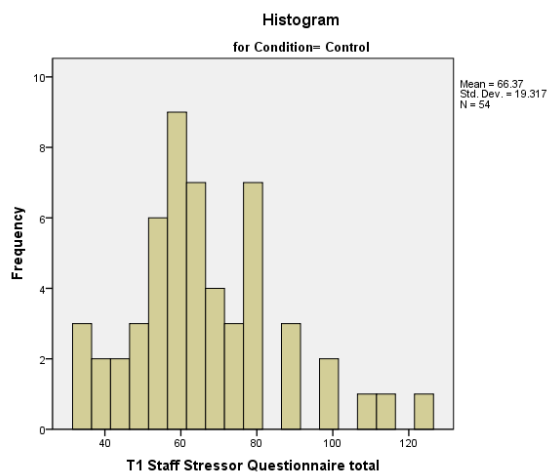


## SSQ Histograms and QQ plots

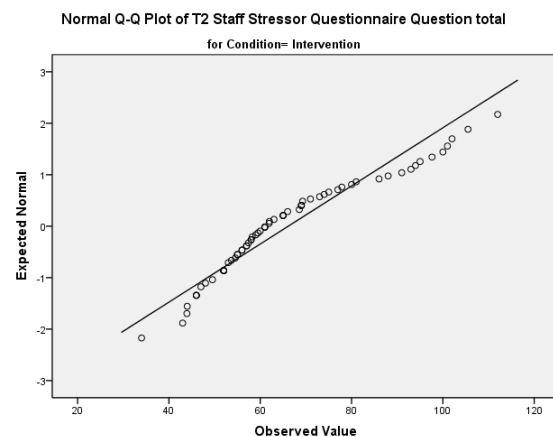
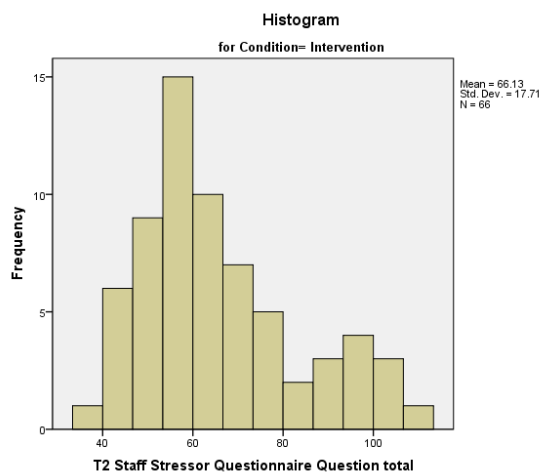
### Time 1 Intervention:



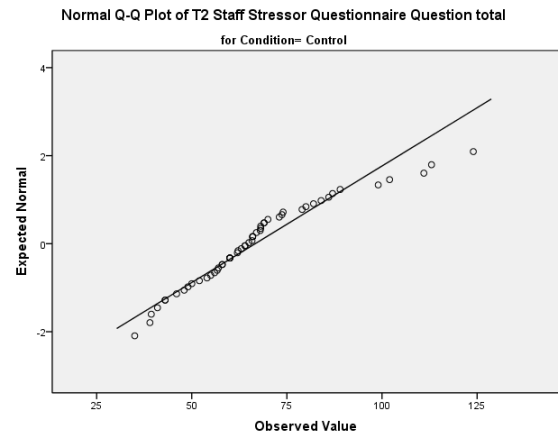
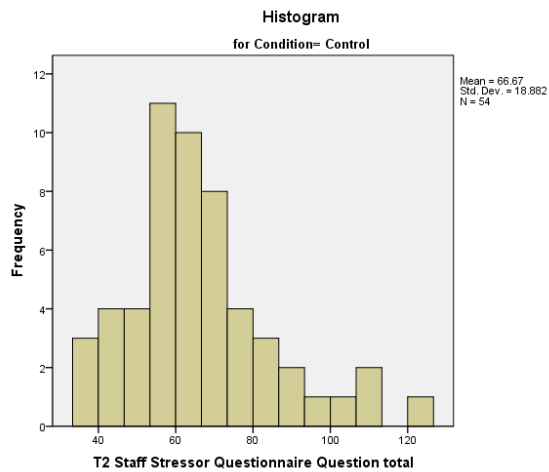
### Time 1 Control:



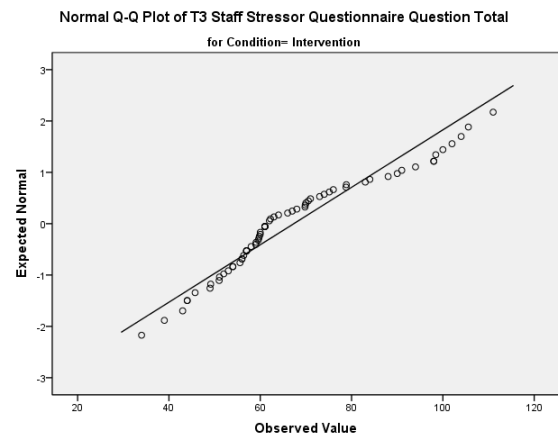
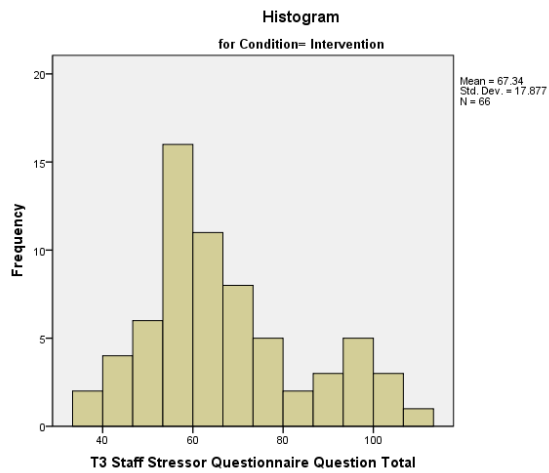
### Time 2 Intervention:



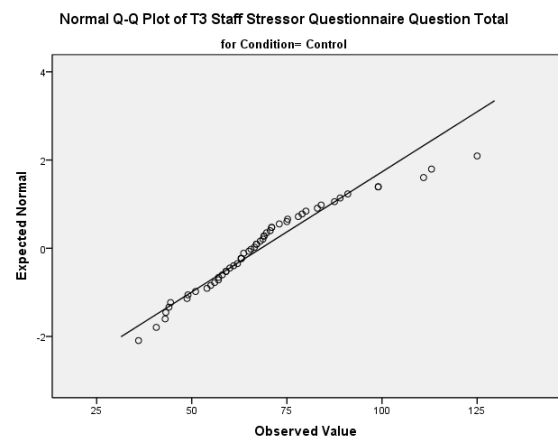
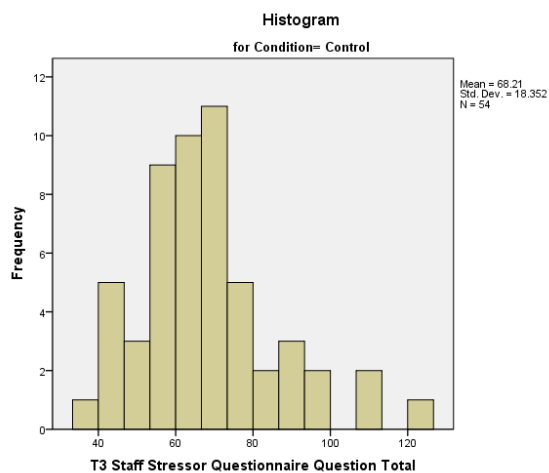
## Time 2 Control:



## Time 3 Intervention:

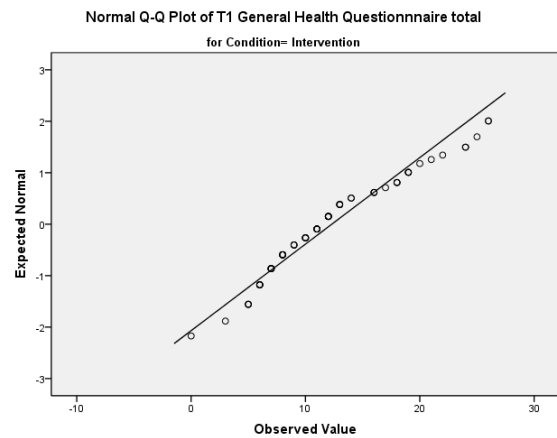
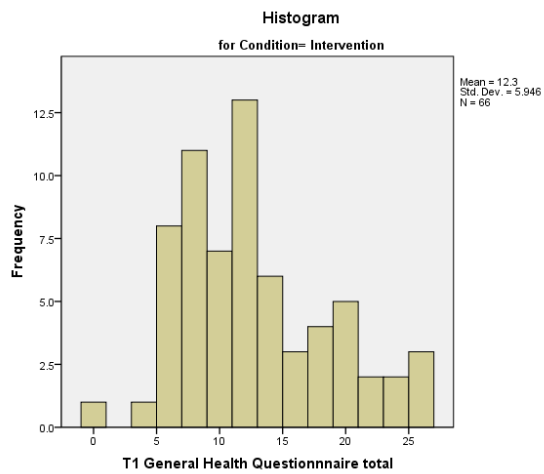


## Time 3 Control:

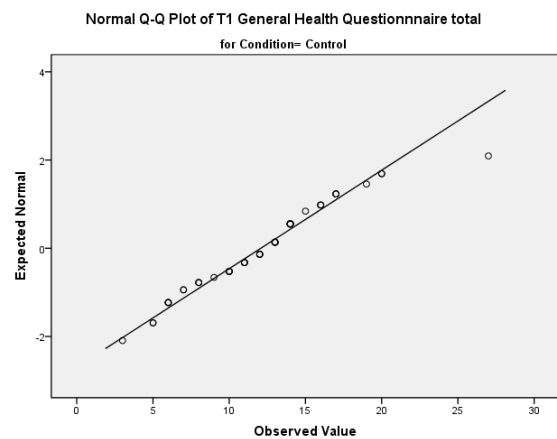
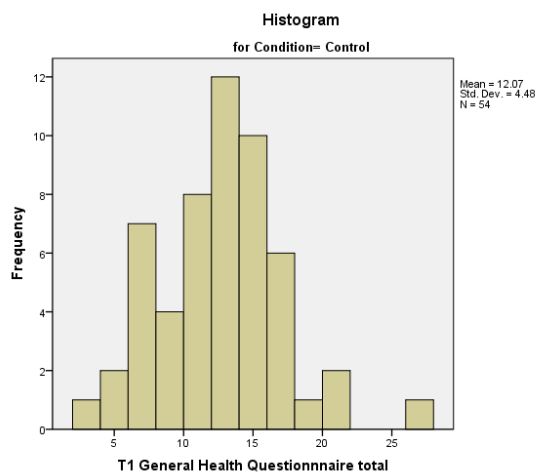


## GHQ Histograms and Q-Q plot.

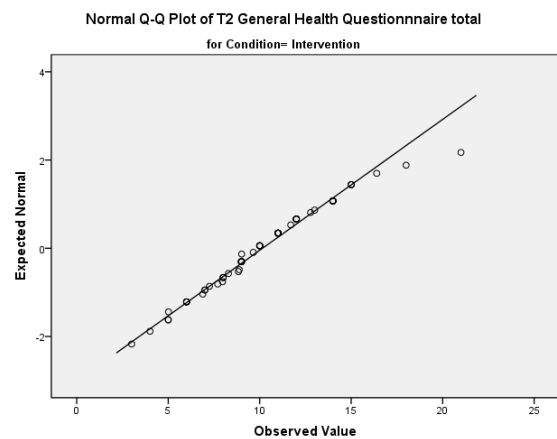
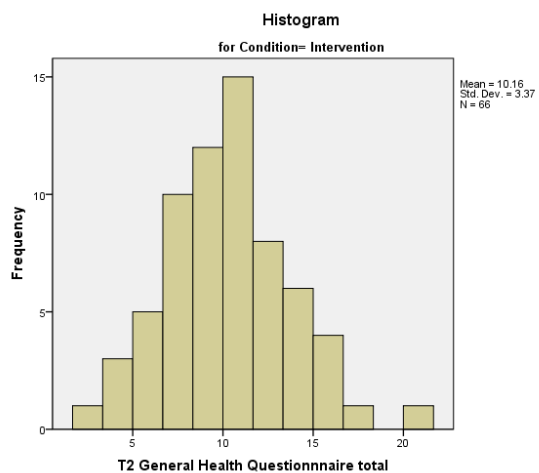
### Time 1 Intervention:



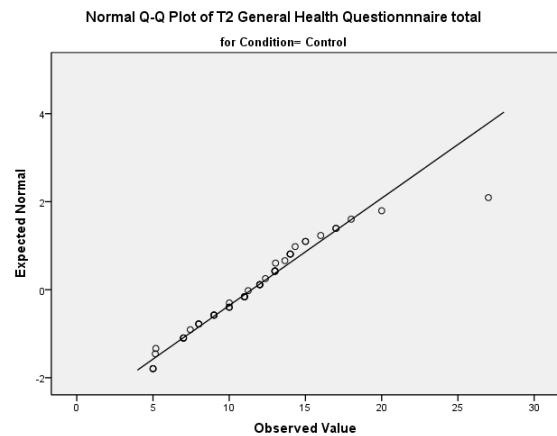
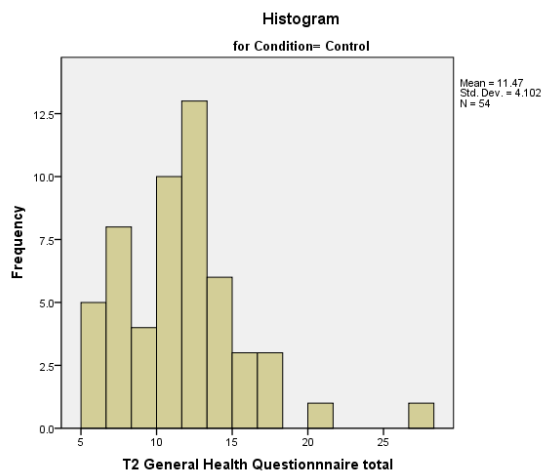
### Time 1 Control:



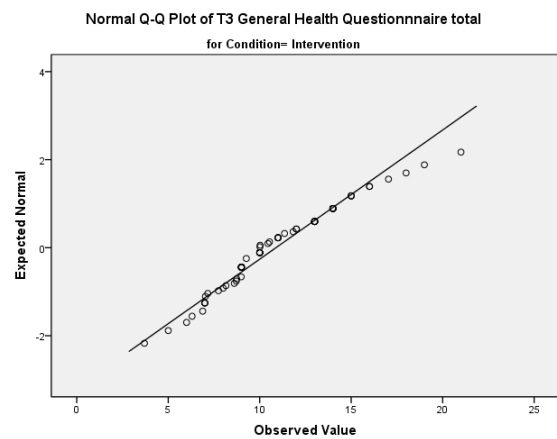
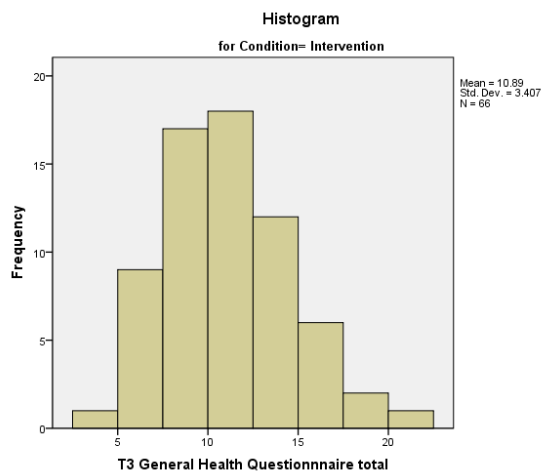
### Time 2 Intervention:



## Time 2 GHQ Control:



## Time 3 GHQ Intervention:



## Time 3 GHQ Control:

